BIOGAS PARTNER

Project report

Biomethane Industry Barometer 2026



A project by

dena

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1 Introduction and key messages

The Industry Barometer has tracked key developments and trends in the German biomethane market since 2012. Its findings are based on a comprehensive survey of market players and an analysis of relevant market data. They combine industry assessments with national and international developments. The Industry Barometer thus provides an important basis for assessing current market conditions, the regulatory framework and future uses of biomethane.

The domestic business situation has improved slightly but remains challenging: the findings of the Industry Barometer 2026 present a mixed picture. On the one hand, the outlook for biomethane has improved, particularly in the heating and transport sectors. On the other, considerable uncertainty remains over future gas grid infrastructure, long-term grid access conditions and the economic viability of new plants. The overall rating for the business situation is once again approaching "satisfactory". Nevertheless, around half of respondents still view the situation negatively.

Overall, the industry is in a period of transition, with new sales opportunities emerging while existing business models come under pressure.

Biomethane feed-in reaches a new high: around 12.3 terawatt hours (TWh) of biomethane was fed into the German gas grid in 2025, an increase of around twelve per cent on the previous year. A further increase to around 13 TWh is expected in 2026. The development of new plants continues to be hampered by long implementation times, complex authorisation procedures, limited grid capacity and supply bottlenecks. New projects still lack a reliable long-term framework for grid connection. The possibility of gas grids being decommissioned at a later date poses a considerable risk, particularly for investments with long payback periods.

The future of gas grids is becoming a key factor in site selection: biomethane producers feeding into the grid need long-term clarity on which sections will be retained, repurposed or decommissioned. Grid development planning must therefore be more closely aligned to a potential biomethane strategy and regional biomass potential. Without coherent coordination between grid planning, grid access and the biomethane strategy, existing production potential may remain untapped.

The heating sector could become the largest market for biomethane in future: the Building Modernisation Act (Gebäudemodernisierungsgesetz, GModG) has restructured the requirements for using renewable and low-carbon gases. The stepped biofuel blending requirement ("Biotreppe") and the green gas/green heating oil quota are intended to support the gradual transition to climate-neutral fuels. Actual demand for biomethane will depend on how quickly gas heating systems are replaced, which heating systems are installed in future and how many households remain connected to gas grids.

Depending on heating system replacement rates and the proportion of households choosing another gas heating system, demand for biomethane could rise to between 60 and 145 TWh by 2045. Meeting this demand would require a substantial expansion of production in Germany and across Europe.

The electricity sector shows signs of a short-term recovery but offers no long-term prospects: in April 2026, six biomethane projects were awarded contracts in the EEG tender for the first time after several years without any contracts being awarded. They demonstrate that highly flexible biomethane combined heat and power (CHP) plants can help integrate renewable energy into the energy system. However, the draft Renewable Energies Act (Erneuerbare-Energien-Gesetz, EEG) 2027 provides for the abolition of the existing tenders for biomethane plants.

The transport sector remains an important but limited sales market: demand for biomethane as a fuel has risen, particularly as a result of the growing use of bio-LNG (liquefied natural gas). Sales increased by around 13 per cent in 2025 compared to the previous year. At the same time, the limited number of gas-powered vehicles places a natural ceiling on further growth in biomethane demand in the transport sector. Initial supply contracts and pilot projects in the maritime sector also indicate growing interest from the shipping industry.

The use of residual materials and waste continues to grow: stricter sustainability requirements, the maize cap and greater demand for low-emission fuels are leading to an increasingly diverse substrate mix. In particular, the use of livestock manure and other residual materials is increasing. The use of liquid manure for biomethane production has almost doubled over the past five years.

2 Background to the industry barometer

The “Biomethane Industry Barometer” survey has been conducted annually by the German Energy Agency (dena) since 2012 as part of the biogas partnership. The results provide a comprehensive body of data, including industry players’ assessments, opinions and forecasts on current developments, opportunities and challenges in the biomethane market. Data is collected using a questionnaire, individual interviews and data from the dena Biogasregister as well as relevant third-party publications.

The Industry Barometer provides in-depth monitoring of biomethane market developments by combining survey findings with national and international trends.

The Biogaspartner Project

The dena project “Biogaspartner” brings together market players along the entire biogas feed-in value chain and supports their activities to shape the market. The German Energy Agency (dena) acts as a facilitator and offers a platform for the coordinated exchange of knowledge and experience as well as for gathering and processing information from Germany and abroad. In this way, the biogas partnership is making an important contribution to the accelerated defossilisation of all energy consumption sectors and thus to achieving the German government's energy and climate policy goals. The "Biogaspartner" project involves the key biogas players from agriculture, plant construction, the energy industry and science.

Representatives of 31 German and European companies in the biomethane industry took part in the survey. Participation was voluntary, with no mandatory questions. The survey was conducted using an online survey tool. A link was sent directly to the relevant companies by e-mail. The survey period ran from May 28 to August 12, 2026.

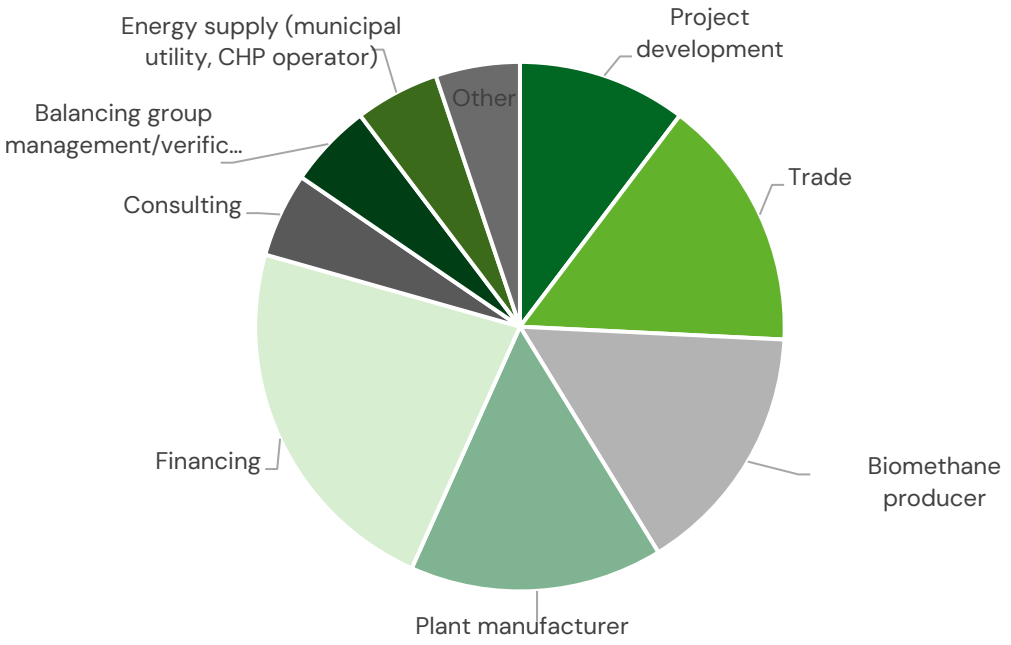


Figure 1: Companies participating in the survey by position in the biomethane value chain [multiple responses possible] (source: own graphic, dena 2026)

3 Assessment of the general business situation in Germany and abroad

The assessment of the general business situation has improved slightly from the historically low rating in the previous survey and is approaching “satisfactory” again. Nevertheless, half of the participants still view the general business situation negatively. Demand in their core business, however, has improved slightly over the past twelve months for almost 60 per cent of respondents. The assessment may reflect a general uncertainty that persists following the crises of recent years. Respondents cite the absence of a discernible or clearly defined policy framework in particular as a reason for the largely unsatisfactory situation in the biomethane market. Repeated changes to the regulatory framework are creating uncertainty. In particular, a lack of clarity over the implementation of the Energy Industry Act (Energiewirtschaftsgesetz, EnWG) is holding back investment. The launch of the gas guarantee of origin register and its role also remain unclear. Greater clarity is therefore needed. Hopes therefore rest on the implementation of the GModG and the green gas quota as potential drivers of demand. Some respondents are optimistic, reporting a gradual increase in demand and a recovery in biomethane prices. They are already seeing growing demand for new plants and the expansion of existing sites.

Domestic players criticise subsidies for biomethane produced abroad, which they say lead to low biomethane prices. At the same time, they assess their own situation in foreign markets much more positively than in Germany. Defined expansion targets and clear subsidy rules provide greater planning certainty elsewhere in Europe. The implementation of the revised European Renewable Energy Directive (RED III) in other EU Member States is seen as a sign of potential growth in the EU biomethane market. Respondents also observe a growing awareness abroad of biomethane's importance for security of supply and its role in the future energy mix. However, uncertainty also persists over the interaction between registers within the Association of Issuing Bodies (AIB) and the European Renewable Gas Registry (ERGaR), the implementation of the Union Database and delays to certain EU implementing regulations.

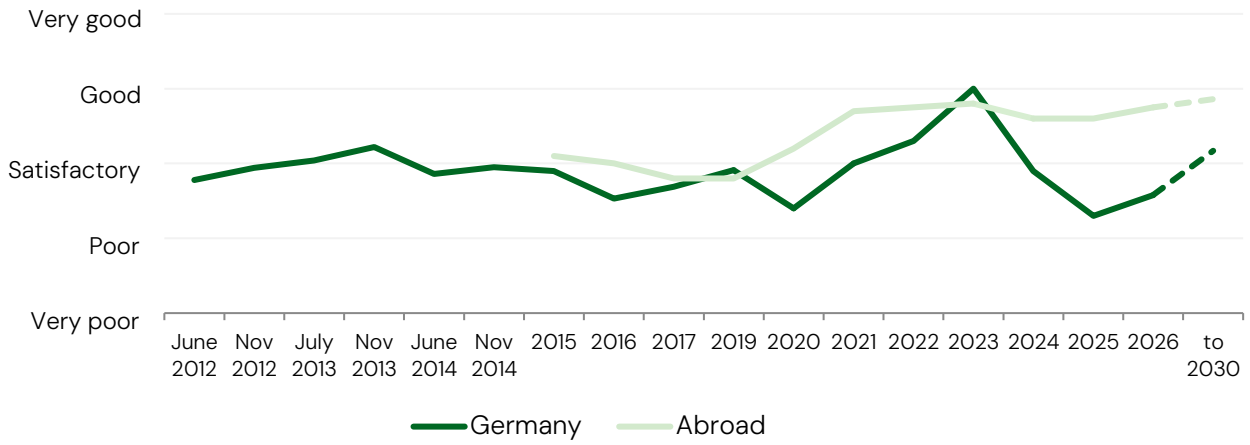


Figure 2: Assessment of the biomethane business situation 2012–2026 and outlook to 2030 (source: own graphic, dena 2026)

Outlook

The industry is divided over its future prospects. Fifty per cent of respondents view the medium-term domestic business outlook positively. The main reasons for optimism are the adoption of the GModG and the announcement

of a green gas quota with its stepped biofuel blending requirement, which is intended to stimulate future demand, alongside the greenhouse gas reduction quota (GHG quota), which creates demand in the transport sector. Overall, however, respondents stress that future business prospects depend heavily on policy and legislative processes. Producers are very willing to enter the market if policymakers send positive signals. The lack of a successor to the Gas Network Access Ordinance (Gasnetzzugangsverordnung, GasNZV) is a cause for concern. The medium-term business outlook abroad remains positive, particularly because of greater flexibility in input materials, easier grid access and the prospect of a consistently supportive legislative environment.

The industry's most pressing demands on policymakers are reliable, ambitious long-term quotas and simpler authorisation and grid connection procedures. It also calls for stronger incentives for biomethane use in the heating market and planning certainty for biogas plants whose EEG support has expired.

4 Status quo of biomethane feed-in in Germany

4.1 Feed-in and plant construction

In Germany, biomethane feed-in reached a new record in 2025. Current data shows that around 12.3 TWh of biomethane was fed into the gas grid, an increase of around twelve per cent compared to 2024. This corresponds to an installed capacity of just under 172,700 normal cubic metres per hour (Nm³/h) and 268 feed-in sites (up nine per cent on the previous year). Plants operated for an average of around 7,335 full-load hours, equivalent to an average plant utilisation rate of around 84 per cent. The upward trend following years of stagnation is therefore continuing. Growth is primarily being driven by plants planned in 2022/23 that came online in 2024 and 2025 after lengthy construction periods, as well as by expectations of rising demand, for example as a result of the GModG and the GHG quota.

However, output increasingly depends on stricter sustainability criteria and the resulting changes required in the substrate mix. In 2025, for example, the area under cultivation for renewable raw materials (NawaRo) in Germany fell by two per cent to an estimated 2.27 million hectares. The industry is making greater use of residual materials and waste, such as livestock manure, which will also affect the specific methane yield of the biomass used in the long term.

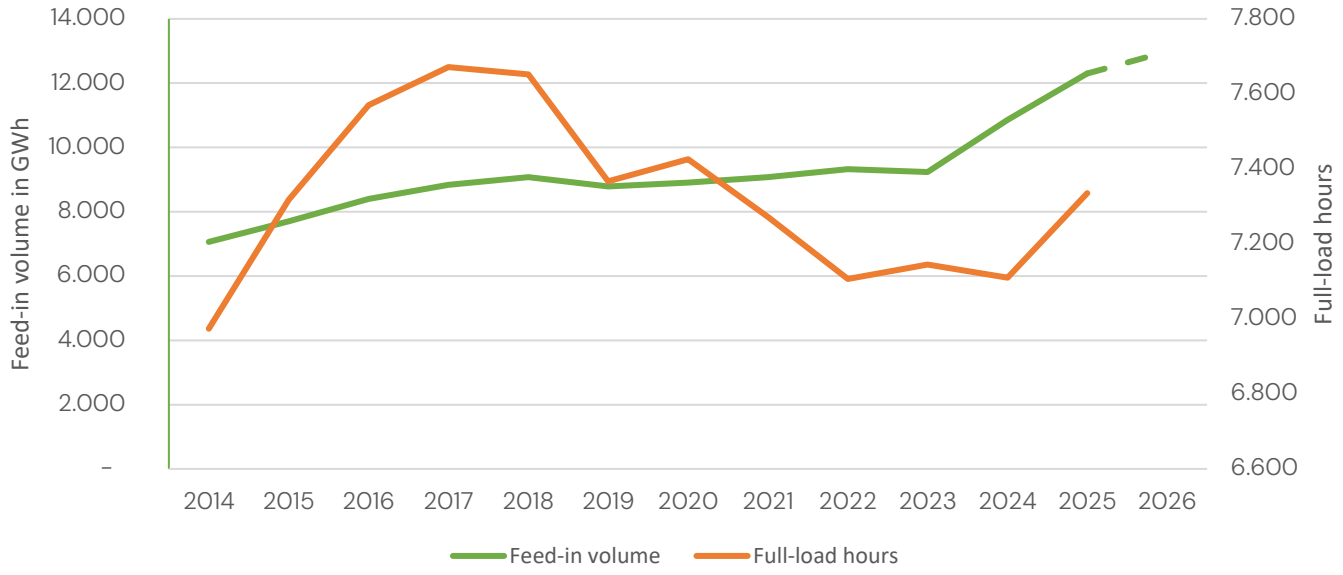


Figure 3: Feed-in volume in GWh (gross calorific value) and full-load hours of German plants 2014–2026 (source: own graphic, dena 2026)

Despite a complex and changing framework in the fuel sector, the construction of new plants gained considerable momentum in 2024 and 2025. At the beginning of the decade, there was a sharp increase in grid connection requests, primarily driven by the historically high GHG quota prices at the time. Many of these requests concerned biogas projects that had previously generated electricity on site and were due to be converted to biomethane production as their EEG support periods gradually came to an end.

The sharp fall in GHG quota market prices in 2024 put many biomethane projects under financial pressure. The subsequent price recovery varied between quota segments, meaning that the viability of new projects still depends heavily on achievable sales revenues and project-specific costs. Production costs did not fall as much as quota prices after the gas crisis, leaving some business models focused solely on the fuel market unprofitable.

Nevertheless, the number of plants continued to grow in 2025 and 2026, reflecting long implementation times for projects planned under different economic conditions. As a result, the number of plants is expected to rise to about 280 by 2026, with feed-in reaching the 13 TWh mark. An additional 14 plants with a feed-in capacity of 650 GWh are planned for 2027, so this trend is likely to continue.

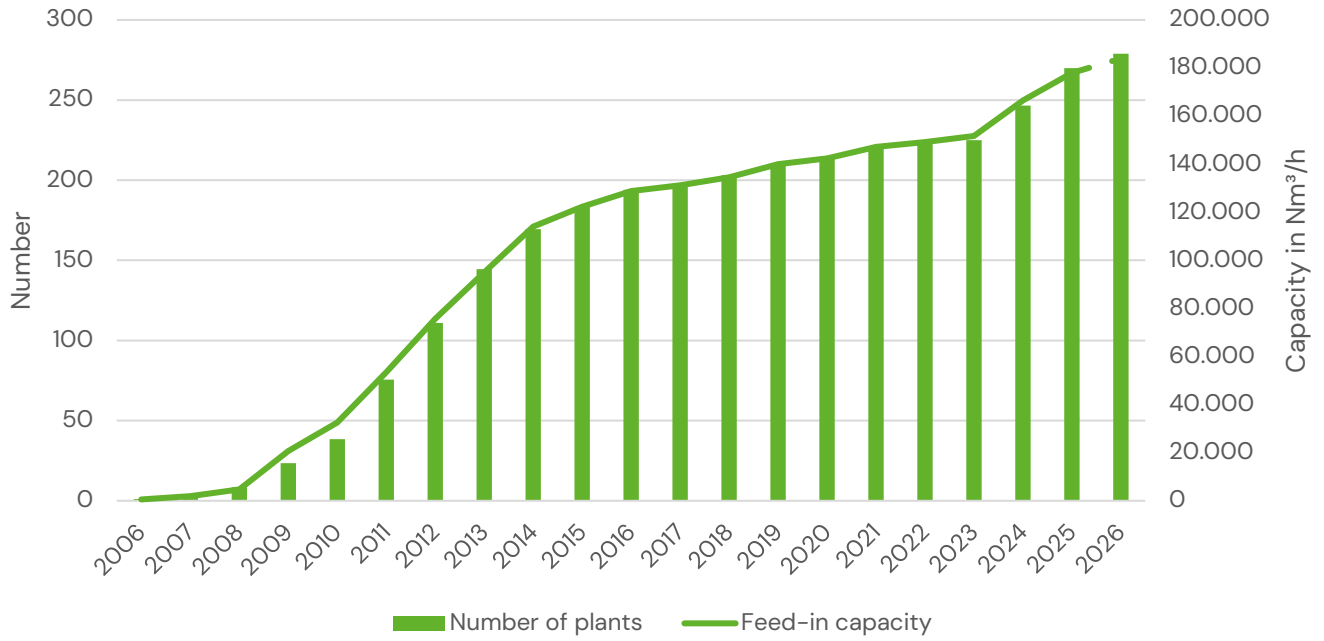


Figure 4: Number and capacity of plants in Germany 2006–2026 (source: own graphic, dena 2026)

A major source of uncertainty for existing projects was the expiry of the GasNZV's specific biogas grid connection rules on 1 January 2026. The preferential terms they provided, such as the 75/25 cost split in favour of plant operators and the cap on grid connection costs, were at risk of being withdrawn. This created considerable uncertainty when assessing the economic viability of new projects. However, legislators responded with a transitional provision in Section 118(4) of the amended EnWG. Under this provision, the existing GasNZV rules continue to apply provided that the advance payment for the grid connection assessment was made on time. The resulting clarity has significantly increased the likelihood of planned projects being implemented in 2026. For future projects, however, uncertainty remains over the possibility of gas grids being decommissioned, making long-term planning difficult.

Despite the transitional solution, staff shortages among grid operators and a lack of standardised processes continue to hamper progress. Persistent supply bottlenecks for electronic and mechanical components for feed-in facilities with redundant systems further delay commissioning.

In your experience, how long does a grid connection currently take from the initial enquiry to completion?	
Time required for grid connection	24–30 months
Time required for the BImSchG authorisation procedure	12–24 months

The required authorisation under the Federal Immission Control Act (Bundes-Immissionsschutzgesetz, BImSchG) also remains a time-consuming process that can take up to two years. Procedures often vary and depend on the experience of local authorities. To address this bottleneck, extensive measures to accelerate procedures have

been introduced as part of the national implementation of RED III. The new requirements aim to limit authorisation procedures to a maximum of twelve months. In practice, however, this deadline cannot always be met.

4.2 Grid access and grid development

Feeding biomethane into existing gas grids currently faces significant regulatory and infrastructure challenges, largely shaped by the transformation of the gas supply as part of the energy transition. Uncertainty over grid access and the future role of gas distribution grids are particularly significant barriers to investment in new biomethane projects.

A significant source of uncertainty is the expiry of the GasNZV and the Gas Network Charges Ordinance (Gasnetzentgeltverordnung, GasNEV) at the end of 2025. Until then, both sets of rules provided the basis for preferential grid access conditions and for spreading part of the costs of biomethane feed-in facilities across grid users. Although the transitional provision in Section 118(4) EnWG has been extended until 31 December 2026, clear long-term conditions for connection and cost recovery are lacking. At the same time, current discussions on amending the EnWG envisage terminating or reassessing connection arrangements after a certain operating period; periods of between ten and 20 years are currently under discussion. This potential "disconnection" creates considerable investment uncertainty, as biomethane plants have payback periods spanning several decades.

The grid access debate is also overshadowed by the fundamental question of which parts of the gas grid should be retained, repurposed or decommissioned in the long term as decarbonisation progresses. With fossil gas demand falling and electrification increasing in the heating sector, partial decommissioning, particularly of distribution grids, appears likely. For biomethane producers feeding into the grid, the key question is therefore whether, and under what conditions, grid infrastructure will be maintained if feed-in continues. Grid development planning is becoming significantly more important in this context. It is a central instrument for determining future grid structures and investment, yet grid development plans are still insufficiently aligned with existing and potential biomethane feed-in points. Against this backdrop, the introduction of priority and non-priority areas for biomethane is currently under discussion. The aim is to guide the geographical distribution of feed-in and align it with long-term grid planning. Biomethane feed-in would be specifically promoted in priority areas, for example through preferential grid access or more favourable cost arrangements. Such areas could be designated in particular where long-term use of gas infrastructure is likely, for example for industrial applications or flexible electricity generation. By contrast, feed-in would eventually be discontinued in non-priority areas to avoid inefficient expenditure on maintaining grids.

Criteria are currently being developed, including through the "Biomethane Round Table" initiated by the Federal Ministry for Economic Affairs and Energy (BMWE). A particular issue is how best to assess regional biomass potential, grid utilisation and relevance to the energy system. While the Federal Network Agency (BNetzA) could play a central role in approving grid development plans and potentially also in designating priority areas, it appears appropriate to entrust the assessment of biomass potential to specialist research institutions.

Overall, the current regulatory transition is marked by considerable uncertainty, which is holding back both investment decisions and the strategic development of biomethane feed-in. Without clear, stable long-term grid access rules and coherent coordination between grid planning and the biomethane strategy, existing potential may remain untapped and biomethane's contribution to decarbonising the energy system could fall short of expectations.

4.3 Examples from other countries

Experience abroad demonstrates how effectively grid access for biomethane can be organised. A study by the Research Services of the German Bundestag concludes that grid access in Germany is up to five times as expensive as elsewhere in Europe. The main reasons are demanding technical requirements, a lack of standardisation and limited use of economies of scale.

France

In France, standardised authorisation procedures apply nationwide to both grid feed-in (droit à l'injection) and the authorisation phase (ICPE n°2781). Nationally applicable standard orders (arrêtés types) govern the inspections and supporting documents required for the different categories (autorisation, enregistrement, déclaration) and establish nationwide technical, organisational and administrative requirements for plant planning, construction, operation and monitoring. This does not accelerate procedures but makes them simpler and more consistent, as planning is not delayed by complex regional rules or ad hoc requests for additional expert reports.

Grid access is also guaranteed in France, but is combined from the outset with a capacity assessment of the receiving grid (zonage de raccordement). This enables both grid reinforcement measures and interconnected or shared feed-in with other plants. Capacity requirements must be entered in a register (registre des capacités) and are allocated by the grid operator subject to availability.

The cost-sharing arrangement is similar to the previous German rules, although plant operators bear a larger share of the costs. Pipeline costs are split 40/60 between the plant operator and the grid operator. The grid operator builds the feed-in station but leases it to the party feeding in biomethane, which then bears the running costs. The latter also pays grid charges for using the grid.

Denmark

In Denmark, too, the authorisation process for biomethane plants is efficient and standardised compared with those in other European countries, contributing substantially to the rapid expansion of biomethane production. In particular, the Danish procedure follows a “one-stop shop” approach, coordinated by the municipality where the plant is to be built. Site selection in cooperation with the gas grid operator, clearly defined nationwide rules in guidance issued by the Danish Energy Agency and municipalities, early advice and clear, short deadlines mean that authorisation procedures rarely take longer than twelve months. The entire process is also digitalised. Application status, upcoming deadlines and missing documents can be viewed online, and documents can be submitted digitally. Feed-in facilities in Denmark also have a right to feed into the grid, and costs are shared under a system very similar to Germany's.

5 Development of input materials

The substrates used in German biogas and biomethane plants have changed considerably in recent years. A key driver has been the stricter greenhouse gas reduction requirements under the Renewable Energy Directive (RED III), combined with regulatory measures such as the maize cap in the EEG and GModG and double counting of biomethane from liquid manure towards the GHG reduction quota. These conditions have prompted many plant operators to diversify their input materials to meet the requirements while satisfying demand for biomethane with particularly strong climate benefits. Demand for biomethane delivering high GHG savings has increased, especially in the fuel sector. This has led to greater use of available liquid manure resources, either by redirecting liquid manure from biogas plants to biomethane plants or by tapping previously unused material streams. Use of liquid manure for biomethane production has almost doubled over the past five years. However, its share has remained stable at between 23 and 27 per cent over the past three years. In energy terms, this increase is less significant because of liquid manure's low energy content.

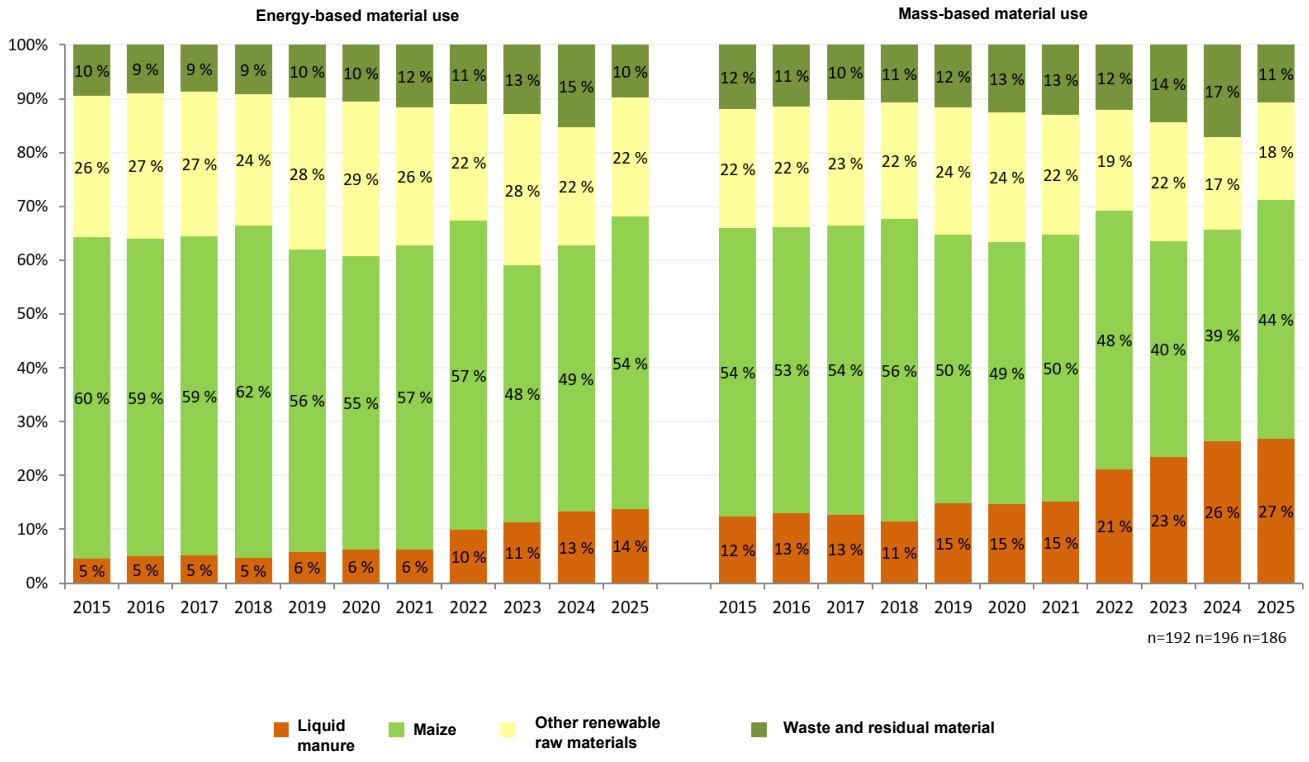


Figure 5: Mass- and energy-based material use for biomethane production 2015–2025 (source: own graphic, dena 2026)

6 Status quo and outlook for biomethane utilisation

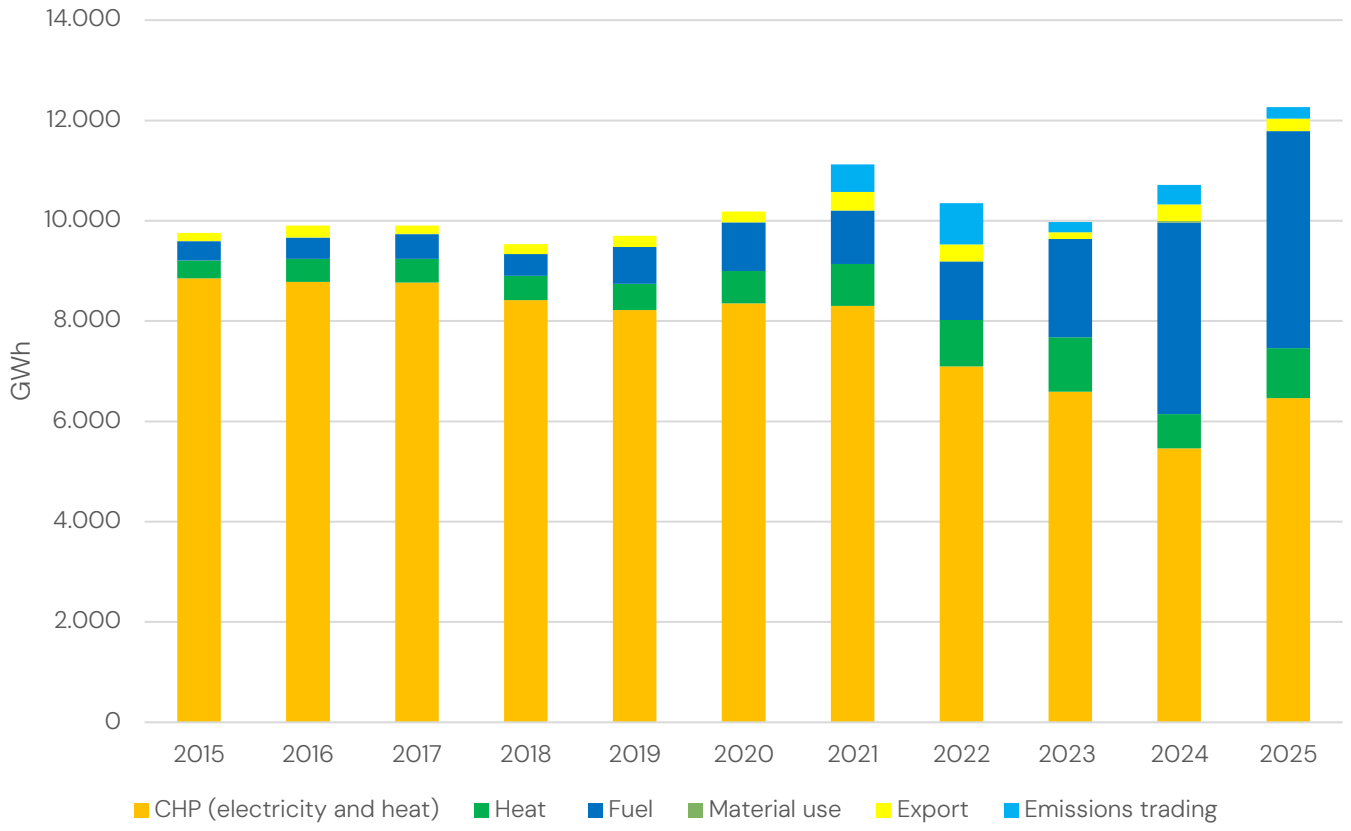


Figure 6: Biomethane use by sector 2015–2025 (source: own graphic, dena 2026)

Demand for biomethane in the electricity sector, which had declined up to the year 2024, recovered slightly in 2025 but has not returned to the high levels seen around 2020. The decline was caused by supply difficulties resulting from insolvencies in 2022 and 2023, which led some CHP plants to switch to natural gas or temporarily reduce output. Some of these CHP plants appear to be running on biomethane again.

Demand in the transport sector remains high, driven in particular by a surge in demand for bio-LNG. However, demand in this sector is probably already close to its physical ceiling, as it covers almost all fuel requirements for gas-powered transport.

Demand in the heating sector remains low. However, amendments to the Building Energy Act (Gebäudeenergiegesetz, GEG) and the subsequent adoption of the GModG with its stepped biofuel blending requirement and green gas quota are expected to lead to significantly higher demand from 2028, particularly for volumes from abroad.

Emissions trading and material use have not yet generated substantial demand in 2025 because of the large cost differential compared with natural gas. However, there is also some uncertainty here, as the available data does not fully capture the allocation of imported biomethane volumes to these sectors. Around one terawatt hour of biomethane is known to have been imported from France, and there are indications of its material use by BASF in Ludwigshafen (BASF SE, 2024) and its use as part of VW Kraftwerke GmbH's energy supply decarbonisation strategy (VW Kraftwerke GmbH, 2026). However, these volumes are not included in the figure above because information on their specific use is limited.

6.1 Electricity sector

Use of biomethane for electricity generation had already been declining in recent years owing to various market disruptions. After several years in which no bids were submitted in the EEG biomethane tenders, partly because of low bid price caps and complex requirements, this year marked a turning point, with renewed momentum in the EEG tenders. In the April 2026 bidding round, six biomethane plants were awarded contracts: two in Saxony, two in Lower Saxony, one in North Rhine-Westphalia and one in Schleswig-Holstein. Following the abolition of the southern quota, which had required 100 per cent of the capacity offered in the tenders to be awarded to operators in southern Germany to concentrate electricity production there and avoid grid bottlenecks, it is noteworthy that all these projects are located in central or northern Germany. Both successful projects in Lower Saxony are in the district of Osnabrück. EfB Energie für Berge GmbH & Co. KG will operate one of the plants in the municipality of Berge. The company aims to provide sustainable heating for the municipality from various sources, including a CHP plant in future. Rasche & Weßler GmbH will operate the second successful plant in Lower Saxony, in Alfhausen. It forms part of a research project on the design of highly flexible biomethane CHP plants (Fachagentur Nachwachsende Rohstoffe e. V. (FNR), 2025). The two projects in Saxony are plants operated by SKW Speicherkraftwerk GmbH in Thiendorf in the district of Meißen. The company operates the Thiendorf storage power plant, which combines a CHP plant with energy storage and uses biomethane as a sustainable energy source. A district heating network is planned there. In Schleswig-Holstein, BioEnergie Gettorf GmbH & Co. KG in the district of Rendsburg-Eckernförde was awarded a contract; the company is developing a local heating network for the region.

The tender outcome reflects the barriers identified in previous surveys. In the Industry Barometer 2024, raising bid price caps was named as the most important measure in the Solar Package, followed by the abolition of the southern quota. Removing these barriers has enabled projects to proceed successfully again for the first time, demonstrating the role highly flexible biomethane CHP plants can play alongside heating networks and heat storage. However, on 29 July 2026, the Federal Cabinet adopted the draft EEG 2027. This comprehensive amendment aims to align renewable energy expansion more closely with market prices, grid utilisation and system requirements. The Cabinet decision followed lengthy discussions within the federal government. As already set out in the initial ministerial draft, the existing tenders for biomethane plants will be abolished under the EEG 2027. The decision reflects a shift in the rationale for support: the federal government argues that biomethane will be needed more in other sectors in future. Although biomethane offers considerable advantages for sector coupling and grid stability as a storable, dispatchable energy source, its cost-effectiveness compared with wind and solar has been questioned. To comply with EU requirements and achieve the national 2030 climate targets, the focus is on scalable solutions that can be implemented quickly. As a result, it will not be possible in 2027 to build on the initial positive developments from 2026 and the long-awaited contract awards in the biomethane tender.

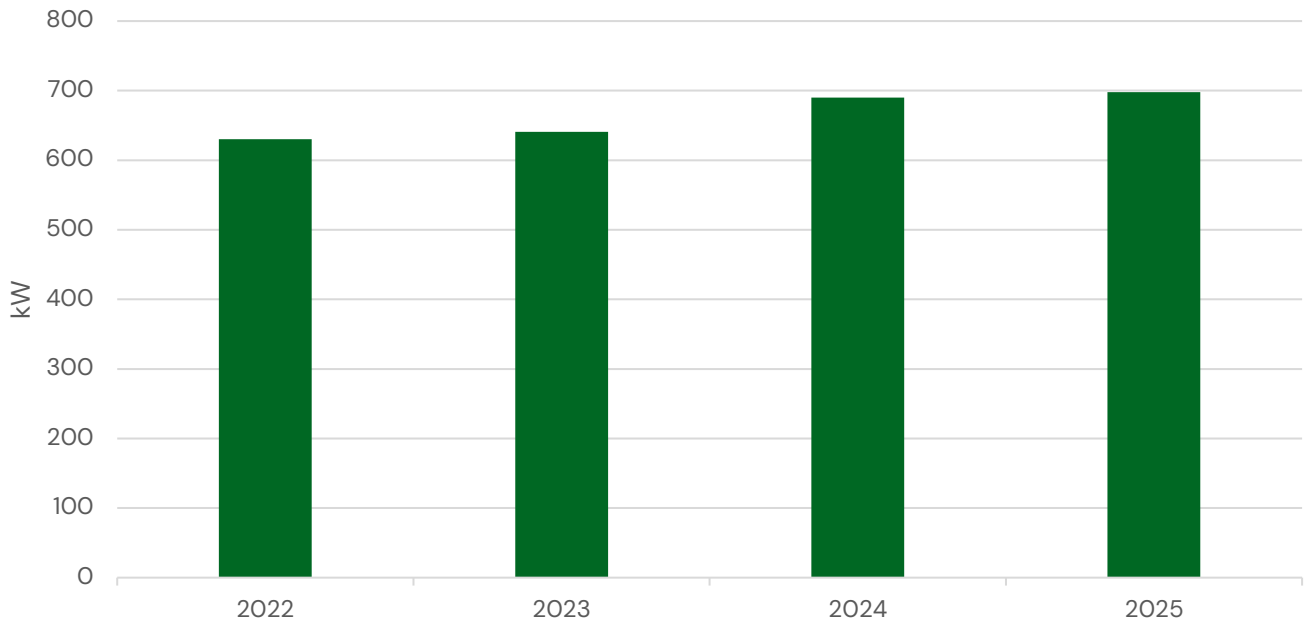


Figure 7: Trends in Installed Electrical Capacity of Biomethane CHP Plants (source: data based on "Time series on the development of renewable energy in figures", AG EE-Stat, German Environment Agency, as of September 2026, own graphic, dena 2026)

6.2 Heating sector

The heating market had already become a focus of decarbonisation under the previous federal government. Low renovation rates, complex heating arrangements and social challenges make decarbonising the heating market one of the most pressing and difficult tasks of the energy transition. The central instrument is the GModG. The GEG, amended in 2023, had already introduced a transitional stepped biofuel blending requirement for building renovations or heating system upgrades. The GModG extended this principle as a permanent solution for new heating systems until 2040. In addition, a green gas/green heating oil quota, the details of which have yet to be defined, is intended to operate alongside the stepped blending requirement to progressively "green" the existing heating stock, shifting it to climate-neutral fuels along a defined pathway.

With consumption of around 380 TWh of natural gas a year, the buildings sector is Germany's largest gas consumer. The heating mix, replacement rates and renovation rates are reducing demand by only just under two per cent a year. Even if this rate doubles, extrapolating current trends leaves gas demand from buildings at over 100 TWh in 2045, several times today's domestic biomethane production of 12.3 TWh. This gap can only be closed by a substantial expansion of production in Germany and elsewhere in Europe. It remains to be seen how this will drive demand. Requirements depend heavily on changes in the stock of gas heating systems in accordance with the GModG, price trends in emissions trading, and the upcoming green gas quota.

Gas dominates heat supply

According to a survey of the heating mix in 2025 by the German Association of Energy and Water Industries (BDEW) (BDEW, 2026), 56.1 per cent of Germany's 43.8 million homes in Germany are heated with gas (including biomethane and liquefied petroleum gas), and 17.2 per cent with heating oil. Fifty-three per cent of residential buildings use gas as their primary heating source and 22 per cent use oil; 75 per cent in total use fossil fuels, while fewer than ten per cent use heat pumps. In 2025, private households consumed around 265 TWh of natural gas

and the commercial, trade and services sector around 114 TWh. Together, this amounts to just over 380 TWh, or around 44 per cent of Germany's total natural gas consumption of 862 TWh in 2025.

Heat pumps, by contrast, clearly dominate sales. According to the Federation of German Heating Industry (BDH), 299,000 heat pumps for space heating were sold in 2025 (up 55 per cent on the previous year), compared with 276,500 gas-fired heating units (down 33 per cent) (BDH, 2026). Heat pumps are therefore already standard in new buildings: according to BDEW, they are planned for more than two thirds of the new homes approved in 2025.

The existing stock, rather than new buildings, is the decisive factor in gas demand. More than two thirds of existing heating systems are over 20 years old, implying a substantial need for replacement over the next ten to 15 years. The choice of replacement heating system will be crucial to the development of heating infrastructure, gas demand and, consequently, demand for green gases.

Stepped biofuel blending requirement and green gas quota

The GModG has been in force since 29 July 2026. It abolishes the 65 per cent renewable energy requirement and replaces it with the stepped biofuel blending requirement for new gas and oil heating systems. Newly installed heating systems in residential and non-residential buildings must therefore be supplied under a tariff that includes a biomethane blend that meets the relevant stages and requirements. Eligible fuels include biomethane, bio-heating oil, biogenic liquefied petroleum gas and various types of hydrogen and their derivatives. For verification, the GModG retains the rules of the GEG and its predecessors. Eligible biomethane must be supplied under a mass balance system, meet the requirements in Annex 1, point 1(a) to (c), of the EEG 2014 (maximum electricity consumption, maximum methane slip and a digester heated with renewable energy), and comply with a maize cap of 50 per cent. Heating systems with a capacity of more than two megawatts (MW) must also comply with the sustainability requirements of the Biomass Electricity Sustainability Ordinance (BioSt-NachV).

For the existing stock not covered by the stepped biofuel blending requirement, the GModG provides for a quota at fuel supplier level. The green gas/green heating oil quota starts at one per cent in 2028 and then rises steadily to 100 per cent in 2045. This is intended to deliver the required additional GHG savings of two million tonnes (t) of CO_2 by 2030. Compliance is technology-neutral: all renewable and low-carbon fuels that meet the sustainability and GHG reduction requirements of RED III and Directive (EU) 2024/1788 on common rules for the internal markets for renewable gas, natural gas and hydrogen are eligible. Initially, only private households are covered. Industry and commerce, transport, and electricity and district heating generation are exempt. “Banking and borrowing” also applies; this means overcompliance can be carried forward to the next year (“banking”), while a shortfall can be made up in the following year (“borrowing”). Failure to meet the quota incurs a penalty. Quota compliance can be traded. The key points recently presented by the BMWE also leave open whether a quota increase could be postponed in response to market conditions without abandoning the target of 100 per cent in 2045.

Biomethane demand in 2045

Demand for biomethane will therefore rise under one of the two instruments, depending on replacement rates and the choice of heating system. As a result, the range of needs is becoming increasingly broad. Assuming a switching rate of 90 per cent when a gas heating system is replaced because of its age or renovation, only one in ten would be replaced with another gas system. Around 500,000 heating systems a year would switch to heat pumps or district heating, and biomethane demand would rise to over 60 TWh in 2040 before declining slightly. With a more moderate switching rate of 35 per cent, demand for biomethane would rise to 145 TWh in 2045.

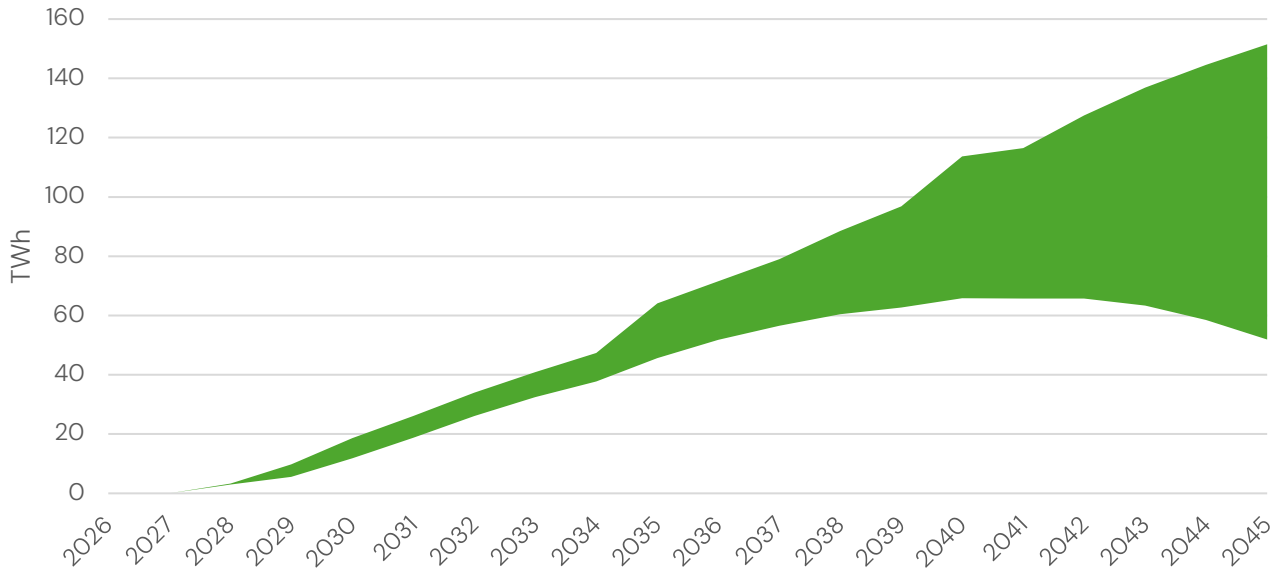


Figure 8: Range of biomethane demand trends for 2026–2045, depending on the heating system replacement rate and heating system choices (source: own graphic, dena 2026)

Development of biogas tariffs

Since the end of 2025, dena has been recording all available biogas tariffs for Berlin, Hamburg, Cologne and Munich each month via the comparison platform Verivox.de, covering different biomethane blending shares for a private household with annual gas consumption of 18,000 kilowatt hours (kWh). For comparison, natural gas tariffs from the default suppliers and four established gas suppliers are collected in parallel.

The various tariffs show an interesting trend. The price analysis reveals that biogas tariffs are converging with natural gas tariffs, particularly those with low biomethane shares. Natural gas tariffs have risen since 2026, while biogas tariffs have fallen, remained stable or risen only slightly, especially those with a biomethane share of ten to 15 per cent. The price gap between natural gas and biogas tariffs is therefore narrowing significantly. These developments reflect crisis-driven increases in natural gas prices and low prices for imported biomethane that has already received subsidies and is primarily used in biogas tariffs. The number of biogas tariffs has grown since last year, with new providers continuing to enter the market. Tariff costs vary between the cities surveyed, but convergence with natural gas prices is evident in all four.

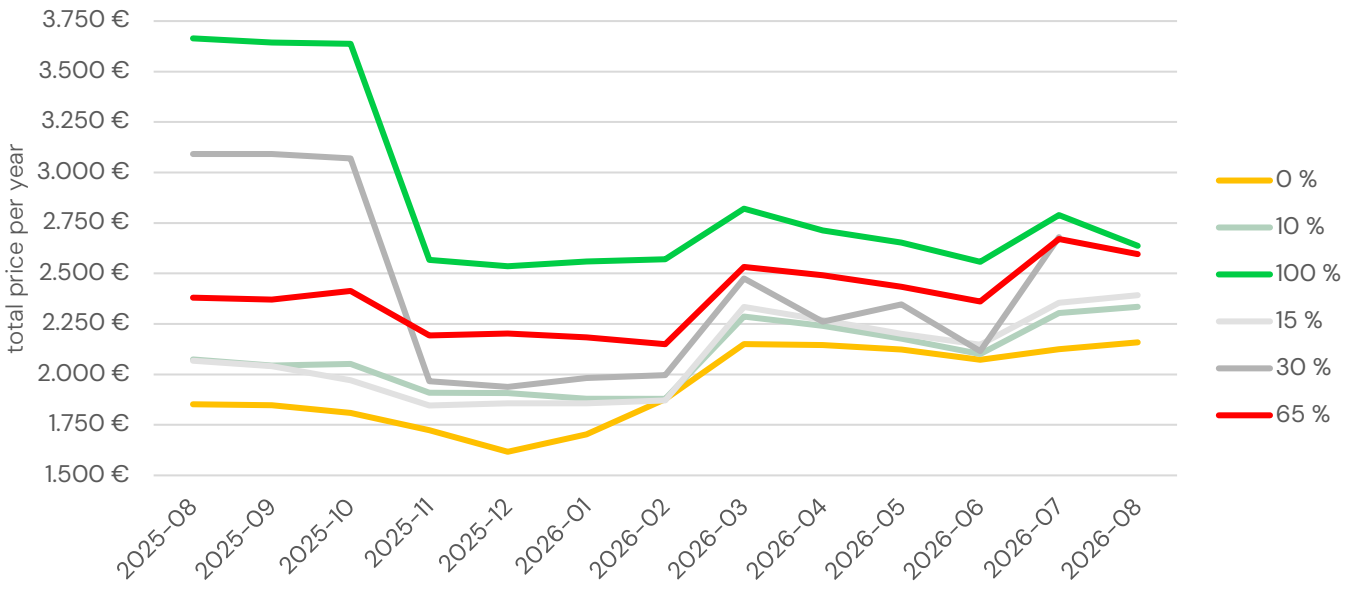


Figure 9: Development of nationwide average annual biogas tariff costs with different biomethane blending shares (10 to 100 %), including the standing charge, for annual consumption of 18,000 kWh, compared with the natural gas tariff with zero per cent biomethane, 2025–2026 (source: own graphic, dena 2026)

6.3 Transport

According to the Federal Motor Transport Authority (KBA), the number of natural gas-powered passenger cars and light commercial vehicles continues to decline, as in previous years. This is due to the limited range of models available compared with the range of electric vehicles and the deteriorating filling station infrastructure.

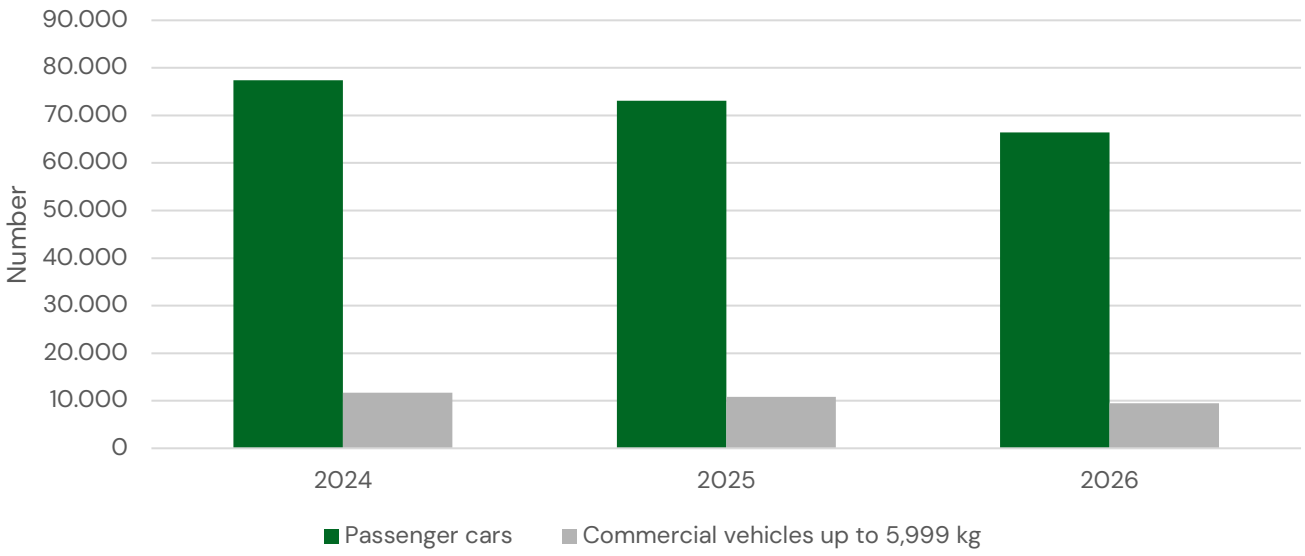


Figure 10: Natural gas-powered vehicles in the fleet (source: Data from the Federal Motor Transport Authority (KBA) as at 1 January of each year (FZ 13), own graphic, dena 2026)

The situation is different for heavy commercial vehicles. Between 2020 and 2022, manufacturers saw increased demand for CNG and LNG trucks (CNG = compressed natural gas), driven by the toll exemption for gas-powered

trucks at the time. However, following the outbreak of the war in Ukraine, demand for LNG models fell again as gas prices rose sharply. At that point, bio-LNG was not widely available; combined with the GHG quota, it could have kept LNG pump prices stable. As bio-LNG became more widely available at German filling stations, demand for LNG trucks stabilised again. The KBA does not record LNG trucks as a separate category, so no official figures are available. However, estimates suggest that more than 5,000 heavy-duty CNG and LNG trucks were registered in Germany at the beginning of 2026.

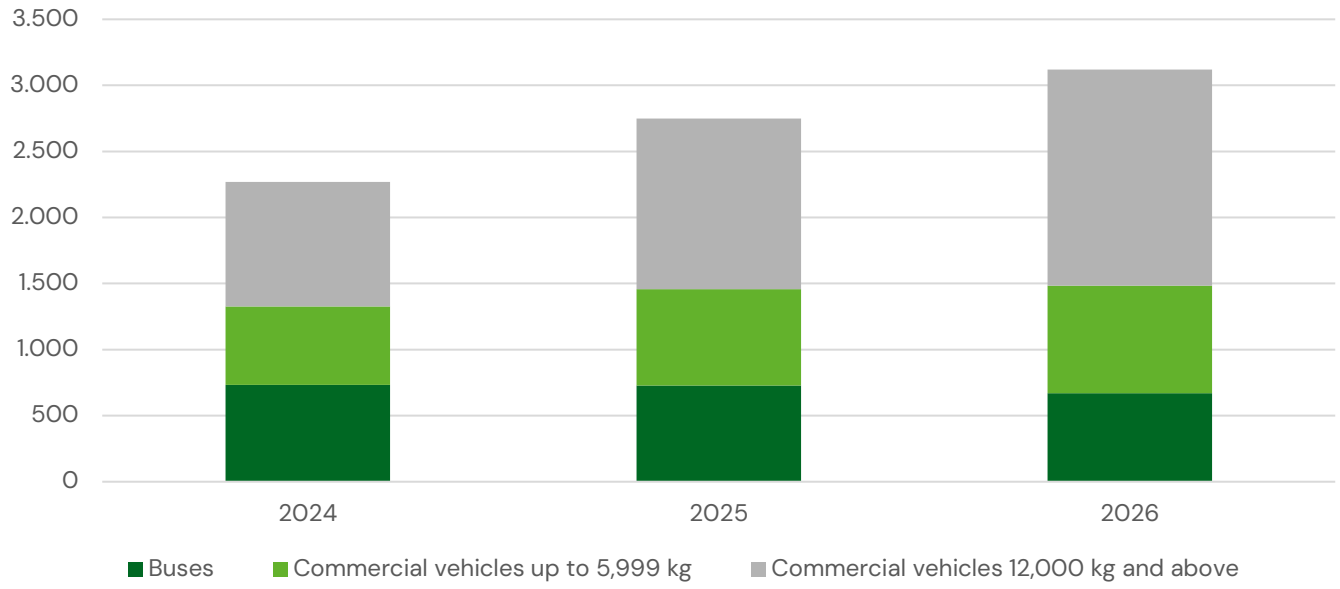


Figure 11: Development of natural gas-powered commercial vehicles and buses (source: Data from the Federal Motor Transport Authority (KBA) as at 1 January of each year (FZ 13), own graphic, dena 2026)

Germany currently has around 190 LNG filling stations suitable for trucks, the vast majority of which offer bio-LNG. The CNG filling station network has been consolidating for several years, with the market shifting from mixed-fuel dispensers serving only passenger cars towards more powerful high-pressure facilities for commercial vehicles. This reflects changes in the vehicle fleet. At the end of 2025, 640 CNG filling stations were operating, offering almost exclusively bio-CNG.

High diesel prices are a key driver of the growing use of gas-powered trucks. For haulage companies, bio-CNG and bio-LNG, combined with the GHG quota system, offer clear economic advantages over diesel through lower and more stable fuel costs. In 2025 alone, average fuel cost savings were around 30 per cent compared with diesel. Following a sharp increase in biomethane placed on the market in 2024 as bio-LNG supply improved, sales rose by around 13 per cent year on year in 2025. This reflects better bio-LNG availability and a slight increase in CNG-powered transport. Registration figures suggest that sales will remain stable or increase slightly in 2026.

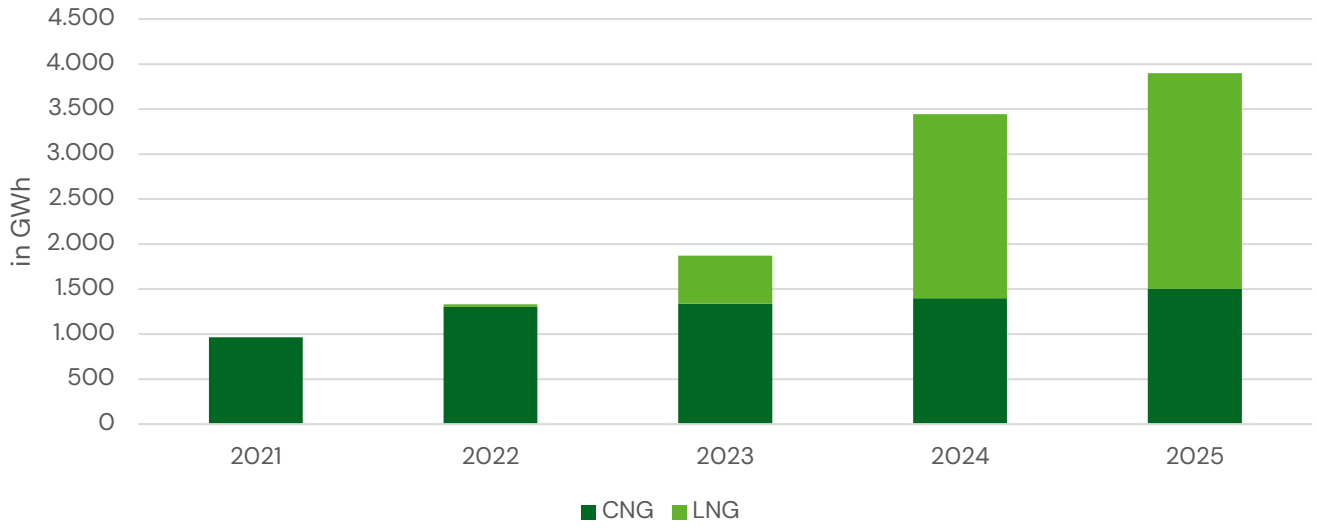


Figure 12: Biomethane in transportation (source: Data from the German Environment Agency (UBA) and own calculations, own graphic, dena 2026)

The transposition of RED III requirements into national law and the associated changes to the GHG quota introduce several new provisions for biomethane. The main changes compared with the rules in place up to 2025 are:

- an increase in the GHG quota to 65 per cent by 2040;
- an extension of the minimum quota for advanced biofuels to nine per cent by 2040;
- an increase in the cap for waste-based biofuels (under Annex IX, Part B, of RED II) to 2.8 per cent from 2039;
- an increase in the cap for conventional biofuels to 5.5 per cent from 2033;
- multiple counting of emission reductions from biohydrogen;
- the introduction of a minimum quota for renewable fuels of non-biological origin, including a gradual reduction in the multiple counting of GHG reductions towards the GHG quota;
- an additional multiplier for counting GHG reductions from electricity used in battery-electric buses and trucks, together with a gradual reduction in the multiple counting of GHG reductions towards the GHG quota.

Various calculations forecast growing demand for renewable fuels by the end of the decade. Whether biomethane can play a greater role depends primarily on the further development of CNG- and LNG-powered commercial transport. This currently places a natural ceiling on the amount of biomethane that can be placed on the market as an advanced fuel. Following legal clarification that biomethane imports may count towards the GHG quota, sufficient sourcing channels are available to ensure that CNG- and LNG-powered transport can continue to be supplied entirely with biomethane at all times.

6.4 Maritime sector

Biomethane has so far played a relatively minor role in shipping, but the market is expected to grow in the coming years. The FuelEU Maritime Regulation (EU) 2023/1805 has applied across the EU since 2025, aiming to reduce GHG emissions from shipping.

The central instrument of the FuelEU Maritime Regulation is a GHG reduction requirement that each individual ship must meet. Emissions must be progressively reduced against a fossil fuel reference value of 91.16 grams of CO_2 equivalent per megajoule (g CO_2eq/MJ).

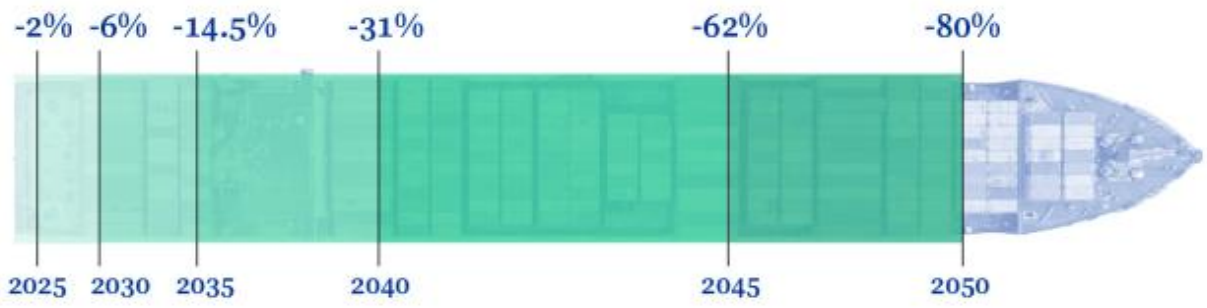


Figure 13: Reduction targets compared with 2020 (source: European Commission, 2025)

Renewable fuels of non-biological origin (RFNBOs) receive particular support and may be counted with a multiplier of 2 up to and including 2033. Compliance must be demonstrated for every ship with a gross tonnage (GT) of 5,000 or above calling at a port in the European Economic Area (EEA). Failure to comply incurs penalties of around €640/t CO_2. Shipping was also included in the EU Emissions Trading System (EU ETS) at the beginning of 2024. From this year, all shipping emissions must be covered by purchases of ETS allowances, with methane and nitrous oxide emissions included alongside CO_2. Certified biofuels, RFNBOs and recycled carbon fuels (RCFs) are counted as having zero emissions. Biomethane use therefore benefits from two complementary incentives: the FuelEU Maritime Regulation and the EU ETS.

In 2025, the International Maritime Organization (IMO) also attempted to introduce globally harmonised principles for certifying low-carbon fuels and charting a course towards climate-neutral shipping. A vote on these plans was postponed in 2025 following opposition from the USA and other oil-exporting countries, such as Saudi Arabia. Negotiations on the details have continued since then, but an agreement is not currently in sight. These developments are particularly important for future market growth in maritime transport, which operates on a largely global basis.

Recent industry developments show that some major shipping companies are already making greater use of biomethane as bio-LNG, as illustrated by Hapag-Lloyd's large multi-year supply contract with Shell Western LNG (Hapag-Lloyd AG, 2025). At the same time, many market players remain somewhat sceptical about the actual potential for wider adoption of bio-LNG in the maritime sector. Bio- or e-diesel and bio- or e-methanol are currently more widely regarded as the main options for reducing emissions, while many shipping companies are monitoring how the market for bio-LNG develops (A.P. Møller – Mærsk, 2026).

These developments come as LNG's share of ship propulsion worldwide is expected to increase significantly in the coming years. According to the IMO, it currently stands at around six per cent globally (IMO, 2024). However, orders for new LNG-powered ships have risen sharply in recent years, meaning that LNG accounts for the largest share of alternative propulsion systems, i.e. those not powered by marine diesel (Engine, DNV, 2025). Growing use of LNG propulsion, combined with the increasing emission reduction requirements of the FuelEU Maritime Regulation, suggests a growing market for biomethane and bio-LNG in shipping, particularly from the 2030s onwards. For

now, however, most market players remain cautious, with activity largely confined to individual pilot projects rather than widespread market growth.

6.5 BioCCS

The storage of CO_2 emissions from biomethane as a form of BioCCS (Biogenic Emissions Capture with Carbon Storage) is at an early stage of development in Germany. Initial projects are moving beyond the pilot stage, while large international projects such as Denmark's Greensand project, which began operations in September 2026, demonstrate that permanent geological storage of CO_2 from biomethane is technically feasible at industrial scale (INEOS Holdings Ltd., 2026).

In Germany, MVV's biowaste digestion plant in Dresden-Klotzsche processes around 46,500 tonnes of biowaste into biomethane each year (MVV Energie AG, 2026). The CO_2 separated during upgrading is used by Swiss climate technology company neustark for mineralisation in crushed demolition concrete in Berlin-Marzahn, where the European Union's first commercial facility for permanent CO_2 storage opened in September 2023 (neustark AG, 2023). A second MVV plant in Bernburg is already operating, although CO_2 capture is still at the planning stage. It is receiving €1.9 million in funding under the Federal Funding Programme for Industry and Climate Action (BIK), through its CCU and CCS funding stream (Projektträger Jülich, 2026).

Access to CO_2 transport and storage infrastructure is one of the main barriers to scaling up BioCCS in Germany. The decentralised distribution of German biomethane plants, which are predominantly small, remote and tied to the availability of agricultural raw materials, makes connection to CO_2 networks spanning multiple regions difficult. Regional clusters and collection systems therefore appear more promising than individual grid connections, particularly in eastern Germany, where plants are geographically concentrated (Bellona Deutschland, 2026). The RED methodology for calculating GHG emissions from biofuels allows CO_2 capture and use to be credited. This gives operators an economic incentive to use CO_2 rather than store it permanently, leaving a comparatively weak incentive for actual CO_2 storage that delivers permanent negative emissions. However, this option is only available until 2036. After that, CO_2 storage will be the only way to continue claiming credits for biomethane. The cost of capturing CO_2 from biogas upgrading plants is around €117 per tonne of CO_2. As biomethane upgrading yields CO_2 with a purity of over 98 per cent, these costs primarily relate to liquefaction (Hauptstadtbüro Bioenergie, 2026). [1] However, revenues from liquefied E290-grade CO_2 generally fall below production costs, meaning that part of the cost must be passed on through biomethane prices. The additional cost is approximately one to two cents per kilowatt hour.

The European Commission's proposed reform of the EU ETS would introduce a new Article 9c to integrate permanent removals certified under the Carbon Removals Certification Framework (CRCF), through BioCCS and direct air carbon capture and storage (DACCS), into the EU ETS for the first time. To this end, the Union-wide cap would be increased by 250 million allowances between 2031 and 2040. Auction revenues would finance the purchase of up to 250 million permanent carbon removal certificates within Europe. If further funding is needed for the planned purchases, revenues from the regular sale of an additional ten million emission allowances may be used. The European Commission would thus purchase removals from BioCCS and DACCS projects in the EU, prioritising cost-effective projects with high integrity. Payment would be made on delivery of the certified units. The price per

[1] Plant size: annual production of 520 cubic metres/hour (m³/h)

tonne would be determined through competitive tenders, in which project developers submit bids and the Commission selects the best combinations of cost and quality until the budget is exhausted. Following purchase, the removal certificates would be cancelled and retired. At the same time, companies subject to the ETS would be allowed to use their own BioCCS removals directly to offset emissions: plant operators, airlines and shipping operators could directly offset their reportable emissions with their own CRCF-certified BioCCS removals (Article 14(1a)). The number of additional emission allowances auctioned would be reduced by the amount of BioCCS removals directly credited, adjusting the total auction volume accordingly --- (Europäische Kommission, 2026).

The Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN) is planning an investment support programme to promote CO_2 removals. It would support the piloting, demonstration and scaling of removal technologies eligible for CRCF certification. A market incentive programme is also being developed to strengthen Germany's voluntary market for carbon removal certificates, build confidence in certificate purchases and lower barriers to market entry. Depending on crediting options and CO_2 prices, this could create an attractive future market for negative emissions from biomethane plants. However, assessing this market segment more accurately requires further clarification of how the GHG calculation methodology and emissions trading rules will interact with negative emissions achieved by storing biogenic CO_2.

7 International trade

International trade continues to grow steadily, with volumes rising sharply. Denmark exports almost its entire annual production. France is also supplying larger volumes to a wide range of importing countries. Germany, Sweden and Switzerland remain net importers.

Trade is being driven by increasingly widespread support mechanisms on both the production and consumption sides.

Czechia successfully held its first tender for biomethane plants, which was significantly oversubscribed. Feed-in is expected to reach 3.5 TWh by 2028. The first plants are already feeding into the grid in Finland, Ukraine and Slovakia. Poland also plans annual production of up to 3.1 TWh through auctions backed by contracts for difference (CfDs). Plant development in Spain is growing rapidly, reaching around 850 gigawatt hours (GWh) in 2026, closely followed by neighbouring Portugal, where five plants with biomethane feed-in of 170 GWh are planned and are due to start feeding into the grid at the end of 2026 (Jornal Económico, 2026).

The Netherlands has recently adopted its long-awaited blending obligation. From 2027, a steadily increasing share of biomethane and synthetic methane is intended to deliver ongoing CO_2 emission reductions. A similar blending obligation entered into force in France in 2026, requiring biomethane to account for 4.15 per cent of supplied volumes by 2028. Germany plans a similar quota for fuels placed on the market from 2028.

According to the fourth EBA Biomethane Investment Outlook, published by the European Biogas Association in July 2026, total planned investment in European biomethane production has risen to more than €35 billion, around 25 per cent above the 2025 figure of €28 billion (European Biogas Association, 2026). Investment is concentrated in established producing countries such as Denmark, the United Kingdom and France, although forecasts also indicate significant investment in the biomethane markets of Italy and Spain. This could further change the ranking of Europe's largest biomethane producers, with investment expected to peak between 2027 and 2030.

By 2030, this construction and expansion of biomethane plants will increase production capacity to 104.5 TWh/year (9.5 billion m³/year). Investment outside Europe could contribute a further 5.5 TWh/year (0.5 billion m³/year) beyond 2030.

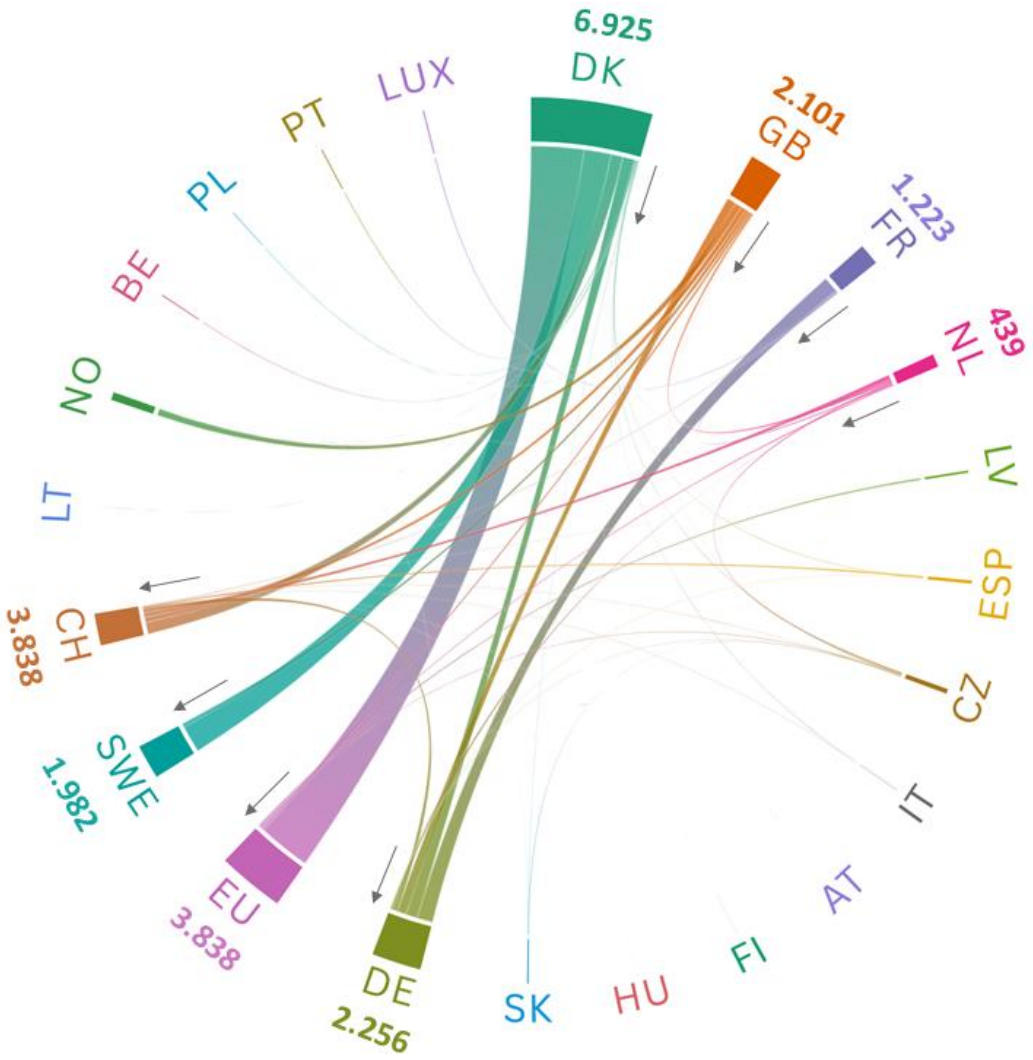


Figure 14: Export/import balance of European biomethane trade in 2025 in GWh (net exporters at the top right, net importers at the bottom left). Note: As trade becomes more complex and increasingly flows in both directions, the graphic shows the trade balance rather than the gross import and export volumes presented in previous publications. (Source: own graphic, dena 2026)

7.1 International verification

European trade still lacks a harmonised market. Different national rules and certification requirements actively create regulatory barriers and complicate cross-border recognition.

The European legal framework also provides no definitive guidance at present. Under the draft RED IV that has been made public, Member States would no longer be required to issue guarantees of origin (GOs) for gas. National guarantee of origin registers could continue on a voluntary basis, but cross-border trading in GOs would no longer have a common European legal framework. Countries that operate only guarantee of origin registers would be particularly affected. Depending on individual Member States' decisions, the market could become more fragmented, moving further away from a harmonised European biomethane market. Under this draft, which could still be amended during further consultations, proof of sustainability (PoS) would in any event become even more important as the central verification instrument.

However, the Union Database (UDB) for renewable gases is still unavailable. The original launch date of November 2024 was missed, and full operation has since been postponed several times. The role of national registers and the verification routes have not yet been fully clarified.

In addition, two European register associations, AIB and ERGaR, currently operate in parallel. Under the European Energy Certificate System (EECS) rules, only guarantee of origin registers within AIB can transfer certificates between one another, so this structure does not help harmonisation either. The example of the Dutch register VertiCer illustrates the immediate impact on biomethane trade. Following its withdrawal from the ERGaR CoO Scheme and move to AIB, biomethane volumes can no longer be transferred from the VertiCer register to Germany as of July 2026. This is also because the gas guarantee of origin register operated by the German Environment Agency (UBA) is still not operational, leaving Germany without such a register in the AIB network.

A further issue for the German market is that certain required characteristics cannot be demonstrated solely through either PoS or GOs, including for imported volumes. For example, the GModG requires biomethane counted towards minimum shares in newly installed heating systems from 2029 to meet technical requirements for upgrading and feed-in, including limits on methane emissions and electricity consumption. National registers such as the dena Biogasregister therefore remain necessary, meaning that verification will remain complex for the time being because several verification systems must be used.

In the short term, the market needs at least a transitional solution allowing transfers between AIB registers and the dena Biogasregister as a route into the German market. Beyond this, work must continue on verification that makes trade easier or, as a minimum, ensures data consistency when different verification systems are used.

8 Pricing and price development

Following their collapse in 2024, quota prices recovered in 2025 and 2026 as the quota increased and the crediting of overcompliance from previous years was suspended. In particular, the price of biomethane from liquid manure has recovered significantly over the past two years. According to the survey, sustained quota prices above €300/t are the threshold for developing new projects for the fuel sector. However, major price jumps are not expected in the current environment, as biomethane already supplies almost the entire market and growth in the truck segment is relatively low. Tradable quota credits are only generated when the fuel is actually used in vehicles. As more biomethane imports enter this segment, supply should remain sufficient to keep prices stable. Independently of this, higher quota prices can also be expected to yield higher quota revenues.

Although prices for biomethane from waste and renewable raw materials have not risen significantly, the industry reports growing demand as the energy crisis continues. Natural gas prices on the spot and futures markets are currently sometimes close to or even above biomethane production costs. Some companies are also focusing on the resilience of their energy procurement in this context.

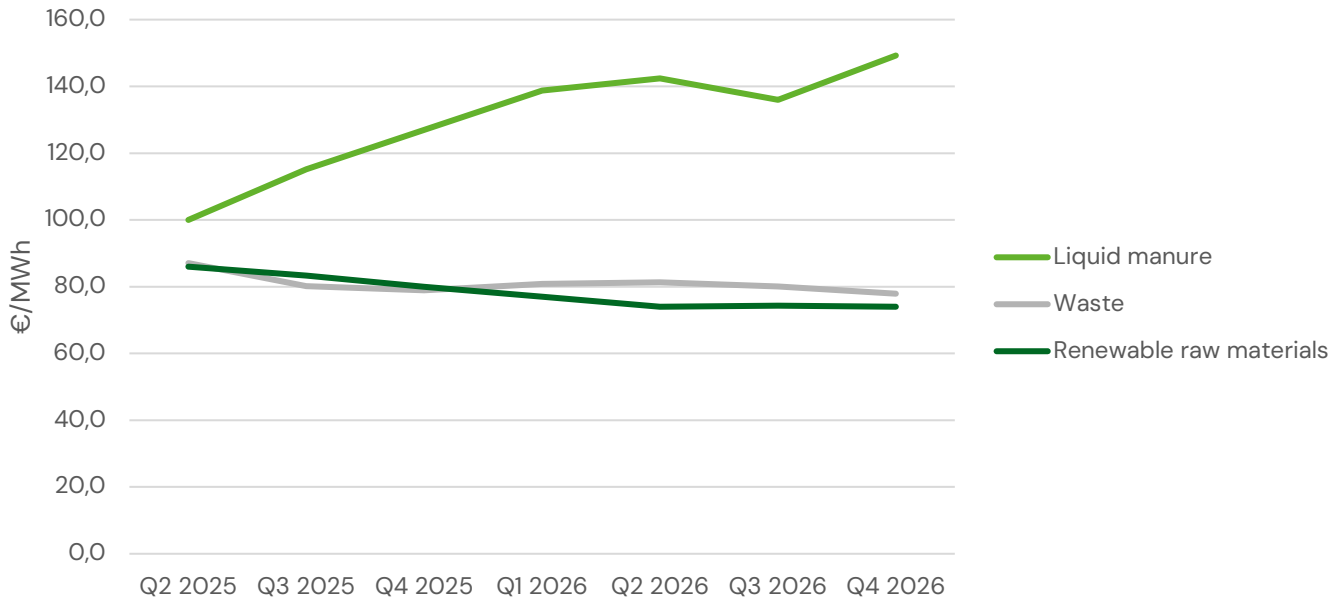


Figure 15: Biomethane price development by input material (source: own graphic (agriportance, 2026), (Argus Media, 2026))

However, prices for biomethane from waste and renewable raw materials are not expected to rise in the medium term. With EEG-related volumes tending to decline and measures to increase biomethane use in the heating sector only taking effect from 2028, demand is likely to remain relatively low over the next two years, provided that natural gas prices return to a lower level over the longer term. Current futures prices for the fourth quarter of 2027 and the following year at least suggest that new incentives will be needed.

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