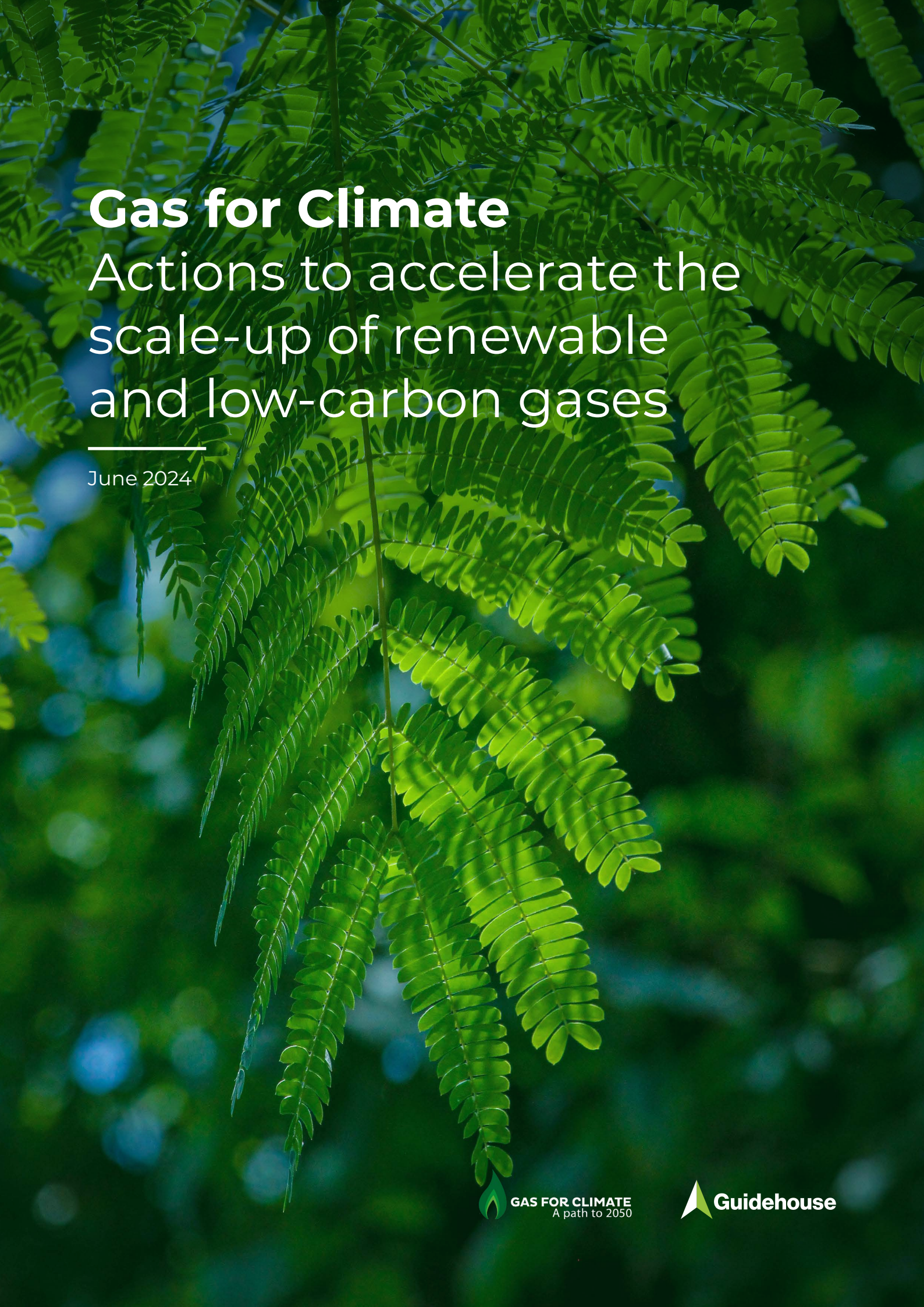


Gas for Climate

Actions to accelerate the scale-up of renewable and low-carbon gases

June 2024

GAS FOR CLIMATE
A path to 2050

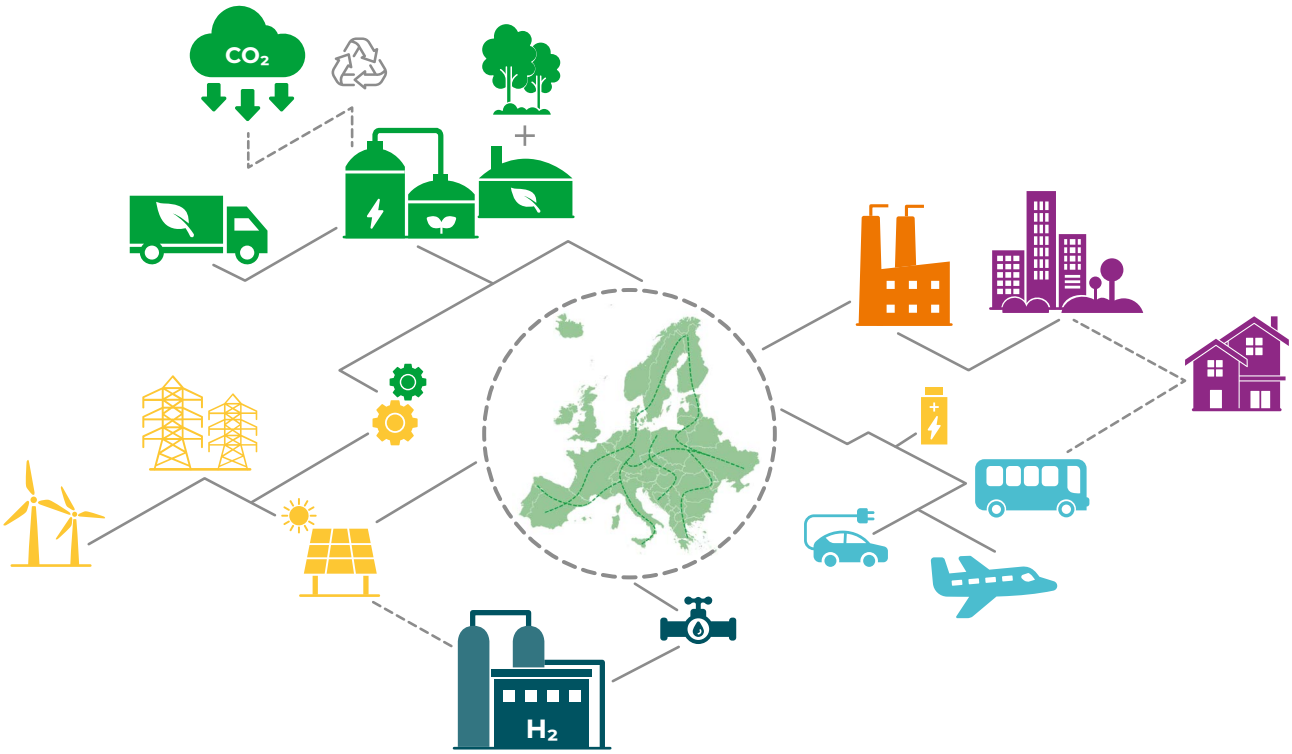
Guidehouse

Executive summary

Initiated in 2017, the Gas for Climate (GfC) initiative comprises a group of 11 leading European gas Transmission System Operators (TSOs) and three biogas industry associations.[1] GfC has analysed and created awareness about the role of renewable and low-carbon gases in the future energy system to achieve the European Union (EU) target of net-zero by 2050.

Incorporating electricity, renewable and low-carbon gases, and CO_2 will be key towards a secure, affordable and sustainable energy system. A smart combination of gas, electricity and CO_2 is essential to deliver a cost-effective energy transition and provide industry, buildings and transport with sustainable energy.

Integrated Energy System



To achieve this vision, GfC has been promoting the recognition of renewable and low-carbon gases as a fundamental pillar of Europe's decarbonisation journey and the role of gas infrastructure as a key component in the energy transition. The incumbent European Commission (EC) developed and implemented major policy packages (e.g., RED III, Fit for 55, REPowerEU) to get the EU on track towards net-zero by 2050. However, there are still policy and regulatory gaps when it comes to renewable and low-carbon gases. This position paper summarises key achievements and fact-based insights that GfC has developed since its inception in 2017 and derives policy recommendations for the incoming EC to achieve EU energy and climate targets.

1 ESFA, Enagás, Energinet, Fluxys, Gasunie, GRTgaz, Nordion, ONTRAS, Open Grid Europe, Snam, Teréga, Consorzio Italiano Biogas, European Biogas Association, and German Biogas Association.

Key achievements of the incumbent EC and recommendations for the incoming EC

Achievements

Hydrogen

- Proposed 10 million tonnes H_2 domestic production target and 10 million tonnes H_2 import target under REPowerEU
- Adopted 6th PCI list for accelerated permitting and access to funding
- Published hydrogen and decarbonised gas market package

Biomethane

- Proposed 35bcm biomethane production target under REPowerEU
- Established the Union Database for Biofuels
- Proposed Biomethane Action Plan under REPowerEU

CCUS

- Proposed 50 million tonnes of annual CO_2 storage capacity by 2030 under the Net Zero Industry Act
- Initial public support for CCUS projects
- Published the Industrial Carbon Management Strategy

Recommendations

Hydrogen

- Propose a clear regulatory framework including operating models for hydrogen storage
- Provide financing support for repurposing of natural gas pipelines and building of dedicated hydrogen pipelines
- Ensure Member States anticipate and accelerate the implementation of the gas decarbonisation package at national level

Biomethane

- Through NECPs, assess whether Member States' strategies would together meet 35 bcm target
- Ensure exchange of best practices for biomethane production & feedstock mobilisation
- Provide definitions on intermediate cropping, degraded lands, and others to give market certainty
- Ensure open access to infrastructure for biomethane operators

CCUS

- Task TSOs with ensuring the future CO_2 infrastructure is open access and non-discriminatory
- Provide additional funding for CCUS market ramp up
- Analyse the biogenic CO_2 capture potential and the hydrogen capacity needs required to produce synthetic fuels

Key achievements

GfC has published multiple reports on the topics of hydrogen, biomethane and carbon capture, utilisation and storage (CCUS) that explore market trends, quantify production potentials, showcase best practices, and make policy recommendations. This section outlines recent EU policy developments regarding hydrogen, biomethane and CCUS, which have also been discussed in past GfC publications.

Hydrogen

In 2023, GfC assessed the benefits of a pan-European hydrogen transmission network to enable the energy transition and reduce dependency on Russian natural gas imports. The assessment found that a rapid scale-up of renewable and low-carbon gases are required for a sustainable and resilient European energy system.

The European Hydrogen Backbone (EHB) initiative, a spin-off of GfC consisting of 33 TSOs, has been formulating a vision for an integrated pan-European hydrogen infrastructure. The initiative shows that five pan-European hydrogen supply and import corridors could emerge by 2030, connecting industrial clusters and ports to regions of abundant supply. To develop all infrastructure required for a pan-European hydrogen network, it is essential that developers are enabled to create bankable projects as soon as possible.

The **REPowerEU plan** and the large volumes of hydrogen needed to achieve the EC's communicated production (10 million tonnes) and import (10 million tonnes) targets for 2030 are a clear signal for project developers. Moreover, the EC has provided public funding to support asset development to accelerate the market. The **6th PCI list**, for example, provides support by allowing project developers to benefit from simplified permitting procedures and access to funding through the Connecting Europe Facility - Energy (CEF-E). An additional step by the EC has been the establishment of the European Hydrogen Bank, a financing instrument to unlock private investments in hydrogen value chains.

Another important achievement is the Hydrogen and Decarnised Gas Market Package **(Gas Package)**, with the purpose of creating regulatory certainty in order to boost European production, transport, and trade of renewable and low-carbon gases. The Gas Package sets common rules to increase the penetration of renewable and low-carbon gases into the energy sector and enable the development of cross-border and cost-effective infrastructure.

Biomethane

GfC has been emphasising the role of biomethane as a renewable and affordable gas that is compatible with the existing gas network and a key solution in diversifying away from Russian energy imports. GfC was first to publish a paper calling for a binding target, requiring at least 11% of gas consumed in the EU in 2030 to be either biomethane or renewable hydrogen.[2] To get to this volume, biomethane production needs to be rapidly scaled up. Therefore, GfC published a 10-step manual to guide Member States in developing their individual national biomethane strategies in oder to ramp-up production.

Along with the 10-step manual for national strategies, GfC has also assessed biomethane feedstock potential, showing that sequential cropping is crucial for achieving the production potential of 35 bcm. Sequential cropping is estimated to make up 20% of the feedstocks in reaching 35 bcm in 2030, and almost 50% of the feedstocks needed to reach 91 bcm[3] biomethane production in 2050. Due to the positive role of sequential cropping for both sustainable energy as well as its function as soil improver and contributing to the reduction of chemical fertilisers, GfC has recommended that silage crops

2 Gas for Climate. 2021. Setting a binding target for 11% renewable gas.

3 91 bcm includes production only from anaerobic digestion. It is estimated that the supply of biomethane in the EU 27 in 2050 will be 151 bcm when including production from gasification.

grown in a sequential cropping system should be included in Annex IX Part A of the RED III. Gasification technologies (pyrogasification and hydrothermal gasification) hold large production potential but will require support to further scale-up. Additionally, GfC has emphasized the need for harmonised and updated quality standards (e.g., European Committee for Standardisation (CEN) standard for gas quality across borders) to enable physical trade of biomethane within and outside the EU.

To diversify energy imports, the EC has put a stronger focus on biomethane and, to a certain extent, has successfully addressed previous GfC recommendations through EU- and national-level policy support. At the EU-level, **REPowerEU sets the target to replace 35 bcm** of Russian natural gas with biomethane. Additionally, there has been a proposal to update Annex IX of RED III, which includes intermediate crops, but this has not yet been implemented.

Furthermore, the EC supported an update of the CEN gas quality standard to ensure cross-border flow of biomethane. Additionally, the EC created the **Union Database** for biofuels, to ensure that volumes can be claimed only once and robustly accounted for. The database is expected to go live for biomethane in November 2024.

As part of REPowerEU, the EC published the **Biomethane Action Plan**, setting out measures to incentivize individual actions and to scale biomethane production and consumption. The plan recommends Member States to develop biomethane strategies. The EC has taken important first steps in incentivising national-level biomethane scale-up efforts, where new targets for biomethane production and consumption must be integrated into their existing National Energy and Climate Plans (NECPs).

Carbon Capture, Usage and Storage (CCUS)

GfC has been advocating for support schemes that cover the entire CCUS value chain. Specifically, there is a need for coordinated action across the EU to fill regulatory and funding gaps that hinder the development of transport and storage infrastructure for CO_2. Moreover, GfC has identified the need for the stardardisation of carbon capture, usage and storage, filling existing gaps related to minimum standards for CO_2 streams, pipeline designs and other aspects of the value chain.

Under the EC's proposal for the **Net Zero Industry Act (NZIA)**, carbon capture and storage (CCS) is one of the proposed technologies to play a role in decarbonisation efforts. The NZIA introduced a 50 million tonnes per annum injection capacity target for CO_2 by 2030 in the EU. In addition to this important step, the EC has adopted the 6th PCI list, comprising of fourteen CO_2 network projects.

In recent attempts to provide support, the EC has opened a call for CCUS under the **EU Innovation Fund**, an expansion of the eligibility for PCI applications to receive **CEF-E** backing, and the creation of a **CCUS Forum**. Until September 2023, the Innovation Fund had supported 20 CCUS projects. In the EU ETS, emitters are now allowed to reduce compliance costs by capturing and permanently storing CO_2 (underground sequestration or permanently chemically bound in a product), providing a further incentive to engage in CCUS.

Additionally, the recent **Communication on Industrial Carbon Management** provides a starting point for the EU regarding considerations and relevant steps needed to develop a policy framework for CCUS. From 2024, the strategy states that the EC would initiate the preparatory work for a proposal for CO_2 transport regulatory package, EU-wide transport infrastructure planning mechanism, minimum standards for CO_2 streams, among others.

Policy recommendations

This section summarises important actions identified in previous GfC work to accelerate renewable and low-carbon gases, but still need to be fully addressed in the EU policy framework.

Hydrogen

- Propose a **clear regulatory framework** and **financing and remuneration models** that allow for the creation of viable business cases and establish stable investment conditions for **hydrogen storage**.
- Provide **financing support** for the repurposing of natural gas pipelines, and the building of new dedicated hydrogen pipelines to increase cross-border transmission capacity.
- Ensure that **Member States anticipate and accelerate the implementation** of the Gas Package at a national level, in order to provide regulatory visibility to project promotors allowing them to take final investment decisions and be able to meet 2030 targets.

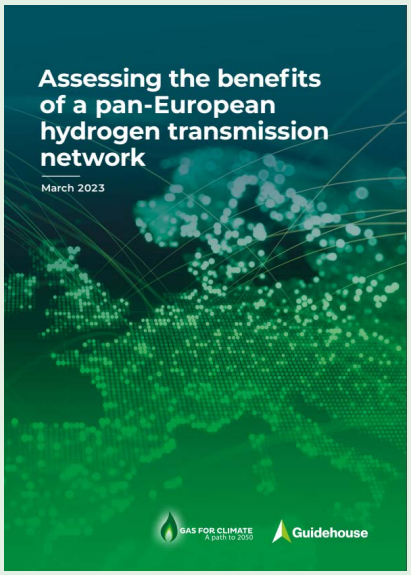
Biomethane

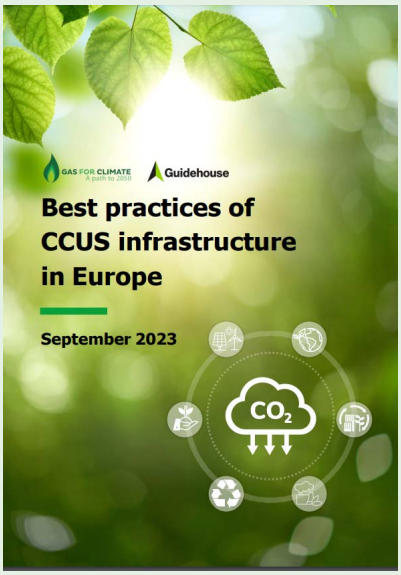
- Assess, through the national energy and climate plans (NECPs), **the Member States' biomethane strategies** to determine whether together they meet the 35 bcm 2030 target.
- Continue to **work through the Biomethane Industrial Partnership (BIP)** to ensure that Member States' exchange of best practices leads to increased ambitions on biomethane production and feedstock mobilisation.
- Provide **clear guidance on the definitions** of intermediate cropping, and abandoned, marginal, severely degraded lands, to give certainty to the market on how to develop these feedstock streams.
- Ensure **open access to infrastructure** where biomethane plant operators have the right to connect and inject their production directly into the grid, thus providing secure offtake for plant operators. Open access to the hydrogen infrastructure has been mentioned in the Hydrogen and Decarbonised Gas Package, and the EC should ensure that Member States introduce a "right to inject" policy for biomethane.

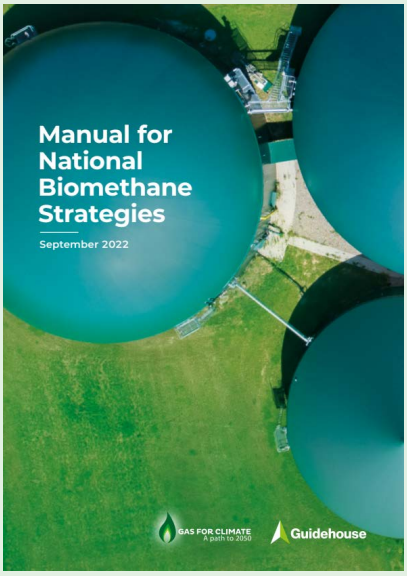
CCUS

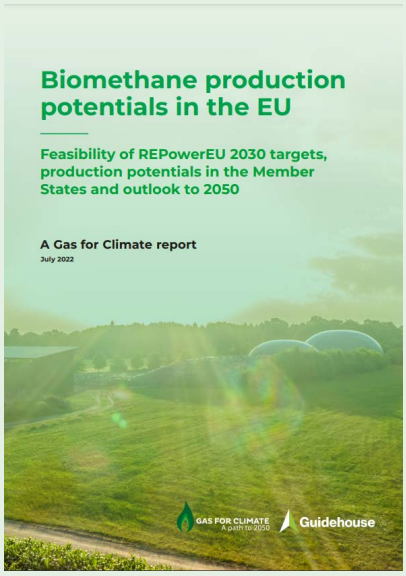
- Task TSOs, given their experience in developing energy infrastructure, with ensuring that future **CO_2 networks are open access and non-discriminatory**.
- **Additional public funding at EU and national level** is needed in the initial deployment phases, which will subsequently enable broader market-based funding mechanisms to be available in implementation phases of projects.
- Analyse the biogenic CO_2 capture potential and the hydrogen capacity needs required to **produce synthetic fuels** (e.g., methane, methanol, etc).

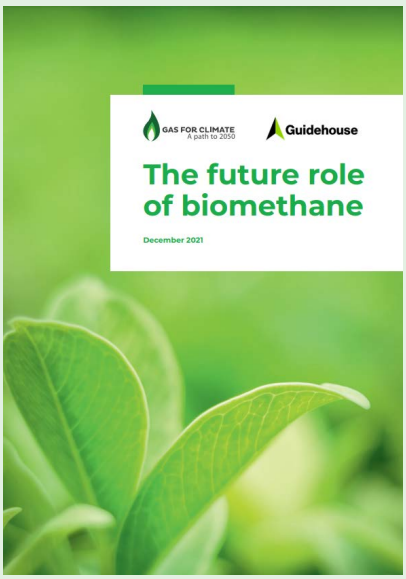
Key publications of Gas for Climate

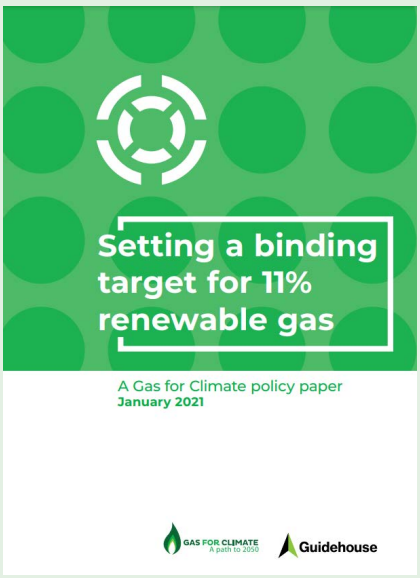












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