



## CAN Europe Position ON THE USE OF GAS IN THE FUTURE ENERGY SYSTEM

*Climate Action Network (CAN) Europe is Europe's leading NGO coalition fighting dangerous climate change. With over 160 member organisations from 35 European countries, representing over 1.500 NGOs and more than 40 million citizens, CAN Europe promotes sustainable climate, energy and development policies throughout Europe.*

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We need a rapid and far-reaching transition of our energy system if we want to remain compatible with the Paris Agreement's goal to limit temperature rise to 1,5°C. Fossil gas is still a widely used fuel for power generation, heating of buildings and industrial processes. Even though it is often claimed to be a transition fuel, it is not a low carbon energy source able to contribute to global and EU's climate commitments. Fossil gas inevitably emits abundant volumes of carbon dioxide when it is combusted and it is inherently linked with leakage of methane – a very potent greenhouse gas – all along its life cycle. The prolonged use of it would lock our economy in a new fossil fuel dependence we cannot afford if Europe wants to maintain its chances to deliver on its climate objectives. Therefore, fossil gas needs to be phased out by 2035 the latest.

Even if we maximize our efforts for energy efficiency and electrification, it may still be useful to utilize a limited amount of non-fossil gases<sup>1</sup> in the energy system, e.g. to deliver long-term storage and in sectors which might be difficult to supply with renewable electricity. However, these can only be used to the extent they a) are compatible with a net zero emission society in line with the objectives of the Paris agreement, b) they are from renewable sources and c) comply with stringent sustainability criteria. They also cannot be used to greenwash a prolonged use of fossil gas or represent a competition to renewable electricity. Any development of energy infrastructure needs to be revised in line with EU and global climate targets and policies. The EU and its Member States should immediately cease all public support for fossil gas infrastructure and develop a roadmap for decommissioning and adapting existing fossil gas installations and related infrastructure to achieve the 2035 phase-out date.

### CAN EUROPE CALLS FOR THE EU AND THE MEMBER STATES:

- The EU needs to achieve net-zero greenhouse gas emissions by 2040 at the latest. In order to do so, there is a need for a complete phase-out of fossil gas by 2035 at the latest starting today.
- Demand for gas can be reduced significantly by fully implementing policies that maximize energy efficiency in buildings, energy systems, transport and industrial processes. In addition to savings, the full deployment of various renewable energy sources, including community-

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<sup>1</sup> In this position paper, the term fossil gas is used where we are specifically referring to gases from fossil fuel sources. There is a lot of confusion over terms such as "renewable", "green" or "decarbonised" gases, which are in many cases misleading. That is why we use the term non-fossil gas to indicate clearly that in our view, only those types of gases which deliver genuine climate benefits and which do not originate from a fossil fuel can under certain conditions be considered as future source. Non-fossil gases shall not only comply with a net zero emission society but also come from sustainable and renewable sources.

owned, distributed generation, and sector integration are important pillars to move to a net zero emission society.

- To avoid the further lock-in into our dependency on fossil fuels, Member States should continue the path of a clean energy transition by investing directly in renewable energy instead of substituting coal with fossil gas or even developing more gas infrastructure. Member States committed to a phase out of coal are making an important step towards reducing greenhouse gas emissions. However, the current state of the climate crisis is not allowing any switch from one fossil fuel to another.
- In case non-fossil gases are being used, only feedstocks and processes that deliver climate benefits, in compliance with a net zero emission society, can be considered. At the same time, these gases should also not lead to negative side effects regarding land-use, lock in to dependence on food waste etc. Hydrogen must be entirely based on renewable energy. For biogas, stringent sustainability criteria need to be applied so only waste and residues with no alternative and lower emission use are considered as potential sources. Even though sequential crops<sup>2</sup> could in certain cases be a valuable feedstock for biogas production, one has to be wary of overoptimistic scenarios and support schemes where biogas production becomes the driver of unsustainable farming practices.
- As the amount of sustainably produced non-fossil gas will be limited, there is a need for a policy framework which prioritizes the allocation of the limited amounts to balancing the energy system, for long term seasonal storage and to those sectors that are most difficult to decarbonise. Any policy on non-fossil gas should be coupled to a clear phase out of fossil gas.
- EU infrastructure policy needs to be revised to be in line with EU and global climate commitments and the rapidly changing future energy infrastructure needs. In addition to better sector integration, infrastructure policy also needs to focus much more on innovative decentralised solutions (such as demand response, flexible generation, storage technologies and more efficient grid management).
- To avoid a lock-in into a fossil fuel energy system, there should be no EU or national public funding for the construction of new fossil gas infrastructure projects; for gas extraction, production or transport, nor for gas consumption. The EU should immediately phase out all fossil fuel subsidies, including a ban on funding any fossil fuel infrastructure in the 2021-2027 EU budget.

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<sup>2</sup> Sequential crops are crops produced as an additional (second) crop before or after the harvest of the main crop on the same agricultural land.

## ANNEX

### FOSSIL GAS IS NOT A BRIDGE NOR A TRANSITION FUEL

Energy production and use, including the energy used in transport, account for some 80% of the EU's greenhouse gas emissions<sup>3</sup>. To remain in line with the objectives of the Paris Agreement and to move to a net zero emissions society by 2040, fossil fuels need to be phased out by 2040 at the latest and we need to move to a 100 % renewable energy supply.

Phasing out coal in the electricity sector is an important step towards reducing greenhouse gas emissions. However, with more EU Member States committing to phasing out coal, a growing interest in switching to fossil gas-fired power plants is being noticed. But from a climate and infrastructure perspective, this would clearly be an obstruction to the development towards a net zero greenhouse gas emissions society with 100 % renewable energy supply.

Fossil gas is often mentioned as a clean, transition or bridge fuel. It is claimed that the combustion of gas only produces about half of the CO<sub>2</sub> produced by burning coal. Yet, in 2015, gas was responsible for around 800 million tonnes of CO<sub>2</sub> emissions in Europe, representing around 25% of all fossil-fuel related emissions in Europe<sup>4</sup>.

Furthermore, these emissions tell only half of the story, as they are only linked to the combustion of gas. They do not include emissions during the life-cycle of gas.

The drilling and extraction of fossil gas, its transportation in pipelines and its use results in the leakage of methane, a primary component of fossil gas. The global warming potential of methane is about 34 times stronger than CO<sub>2</sub> over a 100-year period. When the climate impact of methane is calculated on a 20-year basis, it has a 86 times higher global warming potential than CO<sub>2</sub>. Recent studies at Colorado State University show that methane leakage from the US fossil gas chain is about 60% higher than the official US EPA inventory<sup>5</sup>. Methane leakage affects significantly the overall emissions of gas power plants. A greater than 3 % methane leakage rate would mean that the climate impact of fossil gas is even worse than the one of coal<sup>6</sup>.

In 2018, fossil gas consumption in the EU amounted to 474 billion cubic meters<sup>7</sup>. Fossil gas is still a widely used fuel for power generation (ca 30 % of gas consumption in the EU), heating of buildings (ca 26 % of gas consumption in EU) and industrial processes (29 % of gas consumption in the EU)<sup>8</sup>. All of these sectors will have to take considerable efforts in order to decrease energy use and switch to renewable energy supply in the coming decades.

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<sup>3</sup> [https://ec.europa.eu/clima/policies/international/paris\\_protocol/energy\\_en](https://ec.europa.eu/clima/policies/international/paris_protocol/energy_en)

<sup>4</sup> How can gas contribute to the achievements of EU Climate targets? Energy Post, 24 October 2018. <https://energypost.eu/how-can-gas-contribute-to-the-achievement-of-eu-climate-targets/>

<sup>5</sup> Brandt et al, Methane Leaks from North American Natural Gas Systems, in Science, Vol. 343, Iss. 6172, 2014, <http://www.sciencemag.org/content/343/6172/733>; Zavala-Araiza et al, Reconciling divergent estimates of oil and gas methane emissions, in PNAS Vol. 112, No. 51, 2015, <http://www.pnas.org/content/112/51/15597.full.pdf>;; Schwietzke et al, Upward revision of global fossil fuel methane emissions based on isotope, in Nature, Vol. 538, 2016, <http://www.nature.com/nature/journal/v538/n7623/full/nature19797.html>

<sup>6</sup> <https://www.pnas.org/content/109/17/6435> <https://science.sciencemag.org/content/361/6398/186>

<sup>7</sup> DG Energy (2018). Quarterly report on European Gas markets. Market Observatory for Energy. Volume 11 (issue 4, fourth quarter of 2018).

<sup>8</sup> E3G (2019). Deep decarbonization and the future of gas in the EU. Media fact sheet.

## NO FINANCIAL SUPPORT FOR FOSSIL GAS

Any financial support for fossil gas and its infrastructure will lock Europe into a fossil fuels dependency for decades to come. The EU and its Member States currently still give a lot of support to fossil fuels. Between 2014-2016, the EU alone spent an average of 4 billion Euro per year in fossil fuel subsidies through its budget, development and investment banks, and other funds – including a growing financial support for gas infrastructure through the Connecting Europe Facility, the European Fund for Strategic Investments, Cohesion funds and European Investment Bank lending<sup>9</sup>.

Member States also provide substantial financial support to gas. Countries such as the UK and Germany provide support for gas infrastructure projects through their export credit agencies<sup>10</sup>. There are examples of tax exemptions for royalties on mainland and offshore gas extraction in e.g. Italy and tax relief for industries. Germany still subsidises the replacement of fossil gas-fired boilers in households until 2020.

The phase-out from fossil gas within the next decades has severe impact on existing infrastructure and its further development. Gas infrastructure life cycles can stretch up to 60 years. That means that not only no new fossil gas infrastructure should be built today, but existing gas infrastructure needs to be decommissioned instead. In a consultation by the Council of European Energy Regulators (CEER) on the future rule of gas from a regulatory perspective, it was indicated that the current perspectives on the climate crisis may raise the risk that gas systems are oversized and excessively costly in relation to future flows. CEER also raised the issue of decommissioning the infrastructure and different approaches to address the risk<sup>11</sup>. Particularly given that ever shrinking volumes of fossil gas will be flowing in an already now oversized fossil gas grid, attention must be paid so consumers or taxpayers are not disproportionately affected.

The EU and Member States should immediately cease all public support for fossil gas infrastructure and develop a roadmap for decommissioning and adapting existing fossil gas installations and related infrastructure to achieve the 2035 phase-out date.

## DECARBONISING OUR ENERGY SYSTEM

In addition to maximizing the potential of energy savings, the full deployment of various renewable energy sources is an important pillar to move to a net zero emission society. Recent studies indicate a potential for electrification levels of 50 to 85% by 2050<sup>12</sup>. Electrification is key to use renewable electricity in all sectors (power, heating, transport) in the most efficient way. However, the extent to which electrification with renewable electricity will be deployable is not clear. In some sectors, such as the energy-intensive industries, aviation and heavy freight, there still might be a need for energy carriers with high energy density, though technological development decreases this need.

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<sup>9</sup> <http://www.caneurope.org/publications/blogs/1471-report-phase-out-2020-monitoring-europe-s-fossil-fuel-subsidies>

<sup>10</sup> <https://www.theguardian.com/environment/2019/feb/24/ban-ki-moon-britain-stop-invest-fossil-fuels-overseas>

<sup>11</sup> CEER (2019). Regulatory challenges for a sustainable gas sector. Public Consultation paper. REF: C18-RGS-03-03. 22 March 2019.

<sup>12</sup> Greens-EFA and Öko Institut (2018). A Vision Scenario for the Energy Union ; Wind Europe (2018). Breaking new ground ; Eurelectric (2018). Decarbonization pathways. ; Energy Watch (2018). Energy Transition in Europe Across Power, Heat, Transport and Desalination sectors.

Non-fossil gases may, under certain circumstances, also be useful for balancing of the energy system and long-term storage. The integration, not only of the electricity, gas and heat networks but also of services such as demand response schemes and different storage technologies for electricity, gases and heat further complements the decarbonisation agenda. Policies underpinning our future energy infrastructure will need to look beyond cables and pipelines and focus much more on innovative decentralised solutions.

There is still a lot of potential for energy savings, especially in buildings and industrial processes. Implementing efficiency policies will have a direct impact on the demand and import of fossil gas and on the infrastructure needed. According to the European Commission, every 1 % increase in energy savings reduces gas imports by 2,6 %<sup>13</sup>. A study focusing on the untapped energy savings potential in South Eastern Europe indicated that a dedicated approach to renovate all buildings using gas within 20 years, could cut gas consumption in the region by 70 %<sup>14</sup>.

In addition to this, efforts for a wider uptake of technologies to provide renewable heat such as heat pumps, and solar heating must be scaled up (and facilitated through heat storage and district heating). In order to allow renewable heating to be introduced into the market in a cost-efficient way, subsidies for fossil fuels in the heating sector must be scrapped, accompanied by matching measures to address energy poverty. Indirect support such as connecting new buildings to the existing gas networks must be stopped to allow renewable heating to compete.

Also industry can benefit from energy efficiency measures and renewable energy technologies that are already technically mature and available for many of their process needs. Using energy efficient technologies and renewable energy on their production sites reduces their dependency on imports.

## THE NEED FOR A POLICY FRAMEWORK FOR NON-FOSSIL GAS

Today, there is a lot of confusion over terms such as “renewable”, “green” or “decarbonized” gases, which are in many cases misleading. That is why we use the term non-fossil gas to indicate clearly that in our view, only those types of gases which both deliver genuine climate benefits when taking into account the full life cycle emissions, and that do not originate from a fossil fuel can under certain conditions be considered as future source in a fully decarbonised world.

The degree to which non-fossil gas can replace fossil fuels – and the argument for continued use of the gas infrastructure – has been the subject of many analyses over the last couple of years. The discussion about non-fossil gas deserves however a lot of nuancing.

There are very diverging ranges of estimates the potential of these “renewable/green/decarbonized” gases, especially when taking into account the acceptable levels of sustainability of these different forms of gas. All this makes it difficult to have a proper debate on the future role of non-fossil gases and what kind of policies would be needed to support certain developments related to these gases.

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<sup>13</sup> Directive 2018/844 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

<sup>14</sup> BPIE (2016). Safeguarding energy security in South-East Europe with investment in demand-side infrastructure.

## What is non-fossil gas?

When considering all greenhouse gas emissions along the entire supply chain of gases, some of the sources, processes or end products have a considerable climate impact. Only these feedstocks and processes that deliver genuine climate benefits should be considered. The development of gases that are generated using fossil fuels are not supported.

Non-fossil gases must not only deliver clear and substantial greenhouse gas emissions savings but also come from sustainable and renewable sources. Under certain conditions, renewable hydrogen and certain sources of biogas can be considered as Paris compatible non-fossil gases. These conditions should also apply for any imports into the EU.

### *Renewable hydrogen:*

- Source: for the production of renewable hydrogen (also called green hydrogen) only renewable electricity shall be used. Hydrogen production linked to nuclear power is not supported. Hydrogen originating from fossil gas through steam methane reforming (also called blue hydrogen or grey hydrogen depending on the use of CCS) is certainly not renewable or green, is not sustainable and can by its nature not be compatible with a net zero greenhouse gas emissions economy.
- Climate benefits: renewable hydrogen produced through electrolysis with renewable electricity delivers climate benefits when compared to other gases. Producing large amounts of renewable hydrogen, would require a lot of additional renewable energy capacity which in turn would require a lot of land and resources, but still significantly less than providing the same energy through biomass.
- Infrastructure needs: hydrogen production by electrolysis is currently costly. To assess infrastructure needs, the European network planning process needs to look into a number of questions such as availability, point of production and point of consumption to guide decisions about a refit of the current gas network and/or investing in a new hydrogen infrastructure network.

### *Synthetic methane:*

- Source: conversion of renewable hydrogen by adding CO<sub>2</sub>
- Climate benefits: this conversion will require CO<sub>2</sub> that will eventually be emitted again when the synthetic methane is combusted. This CO<sub>2</sub> should definitely not come from a fossil source. In order to avoid indirect support for burning fossil fuels, synthetic methane could use CO<sub>2</sub> that emanates from upgrading raw biogas to biomethane. Synthetic methane has the same characteristics as methane from natural gas and is a potent greenhouse gas when emitted into the atmosphere. The process to create synthetic methane is very energy intensive thus its efficiency levels are quite low. The energy used for the process to make synthetic methane must not be in competition with more efficient, low-carbon ways of energy generation.
- Infrastructure needs: When converting hydrogen into synthetic methane, the need for modification of the current gas infrastructure would be reduced or would even not be needed. Depending on the different generation locations, adaptations might be needed.

### *Biogas – biomethane:*

- **Source:** only waste and residues with no alternative use should be used to produce biogas. Even though sequential crops<sup>15</sup> could in certain cases be a valuable feedstock for biogas production, one has to be wary of overoptimistic scenarios and support schemes where biogas production becomes the driver of unsustainable farming practices.
- **Climate benefits:** biogas can only deliver genuine climate benefits when waste and residues are being used and no alternative exists to use this biomass in ways emitting less greenhouse gases. Biogas can be used on the production site for heat/electricity production, but can only be used in gas networks when upgraded to biomethane. Through this process, CO<sub>2</sub> is being released which can be reused to complement hydrogen and generate synthetic methane. When producing biogas and biomethane, methane leakage risks need to be managed, as the impact of methane leakage of renewable methane production will be similar to that of fossil methane leakage<sup>16</sup>.
- **Infrastructure needs:** biogas can ideally unfold its potential at the local level, where waste and residues are available in sufficient quantities, while for biomethane different standards and requirements need to be met to be injected in the grid in the respective EU countries.
- **Sustainability:** there are concerns about the sustainability of some of the biogas production. Biogas production should not be the driver of destruction of biodiversity-rich ecosystems, increase competition for food and feed crops for agricultural land. Producing biogas from livestock effluents could generate a net greenhouse gas reduction, however, this should not lead to the further intensification of livestock production. CE Delft estimated that in 2014 energy crops (mainly maize) provided about half of the biogas production (7.6 Mtoe) in the EU. From the 1.4 million ha agricultural land, on which feedstock for the production of biogas was grown (< 10% of the overall German agricultural area), 0.9 million ha was dedicated to maize.<sup>17</sup> This has fueled a vivid public debate and resistance from competing users of feedstock has emerged against the rising use of maize for biogas production<sup>18</sup>. The criteria that are currently integrated in EU policy, such as the Renewable Energy Directive, do not contain sufficient safeguards that guarantee biogas production delivers genuine climate benefits, prevents destruction of biodiverse ecosystems and does not compete with food and feed crops.

## Availability of non-fossil gas

According to Eurostat figures, in 2017 16.8 mtoe of biogas<sup>19</sup> was produced in the EU<sup>20</sup>: this represented about 7.4% of all primary renewable energy production in the EU<sup>21</sup> and about 3.8 % of

<sup>15</sup> Sequential crops are crops produced as an additional (second) crop before or after the harvest of the main crop on the same agricultural land.

<sup>16</sup> Baldino, C. The Potential for Low-Carbon Renewable Methane in Heating, Power, and Transport in the European Union

<sup>17</sup> <http://www.fnr-server.de/ftp/pdf/berichte/22004416.pdf>

<sup>18</sup> CE Delft (2016). Optimal use of biogas from waste streams: an assessment of the potential of biogas from digestion in the EU beyond 2020.

<sup>19</sup> This includes landfill gas (2.6 mtoe), sewage sludge gas (1.4 mtoe), biogas from thermal treatments (0.2 mtoe) and other biogas from waste and raw plant material (12.6 mtoe).

<sup>20</sup> EurObserv'ER (2019). The state of renewable energies in Europe. Edition 2018. 18<sup>th</sup> EurObserv'ER Report.

<sup>21</sup> The primary production of renewable energy within the EU-28 in 2017 was 226.5 mtoe

[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Renewable\\_energy\\_statistics#Renewable\\_energy\\_produced\\_in\\_the\\_EU\\_increased\\_by\\_two\\_thirds\\_in\\_2007-2017](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Renewable_energy_statistics#Renewable_energy_produced_in_the_EU_increased_by_two_thirds_in_2007-2017)

the fossil gas consumption<sup>22</sup>. In 2016, CE Delft estimated the feedstock use for biogas in the EU: In 2014, energy crops (mainly maize) provided about half of the biogas production (7.6 Mtoe), followed by landfill (2.7 Mtoe), organic waste including municipal waste (2,0 Mtoe), sewage sludge (1.3 Mtoe) and manure (1,1 Mtoe<sup>23</sup>). Germany, Italy and the UK were responsible for 77 % of the production<sup>24</sup>.

Around 70 Mt of dedicated hydrogen is produced today at global scale: 76 % from fossil gas and almost all the rest (23 %) from coal. As a consequence, global hydrogen production today is responsible for 830 MtCO<sub>2</sub>/yr, corresponding to the annual CO<sub>2</sub> emissions of Indonesia and the United Kingdom combined<sup>25</sup>.

Different studies have come up with diverging estimates of the future availability of renewable/decarbonized gas. While the most recent Navigant study<sup>26</sup> for the Gas for Climate consortium came up with estimates of 270 bcm (of which 95 bcm EU biomethane production and around 162 bcm of renewable hydrogen<sup>27</sup>), the International Council on Clean Transportation (ICCT), estimates more limited availability for renewable methane (36 bcm)<sup>28</sup>. The difference mostly comes from the level of acceptable sustainability and from the real Paris compatibility of the different forms of gas. Recently, the Agency for the Cooperation of EU Regulators (ACER) called upon ENTSO-G to provide more quantitative and evidence-based information on the volumes, location and economics of each of the renewable gas technologies in view of having more credible estimates of their use and its implications in the future<sup>29</sup>. When taking all considerations mentioned above into account, it is clear only limited amounts of sustainable produced non-fossil gas that delivers genuine climate benefits will be available.

The discussion about the potential of non-fossil gas is important in relation to the discussion about the current and future gas infrastructure. Overoptimistic scenarios for all kinds of renewable/decarbonized gases can be instrumentalised as a driver for the continued expansion of fossil gas infrastructure and to greenwash the fossil gas industry. By doing so, we increase the risk of further locking the EU into its dependency on fossil gas.

There is currently no clear framework that provides the basis for determining the highest value use of what is likely to be a scarce resource. The limited sources should only be allocated to balancing the energy system, for long term storage and to those sectors which are most difficult to decarbonize. This entails there should be no more fossil gas infrastructure development into the transport sector.

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<sup>22</sup> Fossil gas consumption in 2017 was 491 bcm, which is around 442 mtoe.

<sup>23</sup> In terms of feedstock input on a mass base, manure contributes about 43%

<sup>24</sup> CE Delft (2016). Optimal use of biogas from waste streams: an assessment of the potential of biogas from digestion in the EU beyond 2020.

<sup>25</sup> IEA (2019). The future of hydrogen. Seizing today's opportunities. Report prepared by the IEA for the G20, Japan

<sup>26</sup> Navigant (2019). Gas for Climate. The optimal role for gas in a net zero emissions energy system.

<sup>27</sup> The biomethane estimate is supply-driven whereas the hydrogen potential is demand-driven. The 162 bcm is the total renewable hydrogen demand in various sectors. In addition to renewable hydrogen and biomethane produced in the EU, they also assessed an additional volume of 13 bcm of biomethane from Ukraine and Belarus available for the EU market.

<sup>28</sup> ICCT (2018). The potential for low-carbon renewable methane in heating, power and transport in the European Union. Working paper 2017-26.

<sup>29</sup> ACER (2019). Opinion n° 14/2019 of the Agency for the Cooperation of Energy Regulators of 27 June 2019 on the ENTSOG draft Ten-Year Network Development Plan 2018.

The EU therefore needs to set up an overall framework for the development and use of non-fossil gas with thorough sustainability criteria which ensure they are fully in line with a net zero emissions society. This framework needs to prioritize the allocation of the limited amounts of non-fossil gas. It is clear that the further development of energy infrastructure should be evaluated with regard to complying with this framework.

## EU INFRASTRUCTURE POLICIES NEED TO REFLECT CHANGING EU COMMITMENTS

Over the last couple of years, overestimation of gas demand and security and diversification of supply considerations have been major drivers for investments in gas infrastructure in the EU. Several EU instruments (e.g. the Connecting Europe Facility or the European Fund for Strategic Investments) have been contributing to the development of a well interconnected and 'resilient' gas system which offers a high degree of security against potential disruption cases. In its recent State of the Energy Union, the European Commission stated that "If the necessary commitment is maintained, and there are no delays in implementing key projects, Europe should achieve a well-interconnected and fully shock-resilient gas grid by 2020 or shortly thereafter"<sup>30</sup>. Yet, the EU list of Projects of Common Interest (PCI) continues to encourage the construction of about 100 new gas projects, most of which have commissioning dates well beyond this 2020 date. Policies that drive further developments are therefore outdated and go against the EU's climate objectives.

The European Network of Transmission System Operations for Electricity (ENTSO-E) and Gas (ENTSO-G) update their Ten-Year Network Development Plan (TYNDP) every two years. This plan provides an overview of the European energy infrastructure and its future developments. In recent years, projected gas demand has been consistently overestimated in the ENTSO scenarios<sup>31</sup>. Moreover, so far no Paris-compatible scenario has been included into their assessments. As a result, the infrastructure plans are not only misaligned with EU and global climate policy, they pave the way for a prolonged fossil fuel lock-in. It is also clear that any expanding fossil gas infrastructure project will further lock our economy into a fossil-fuel based system and will be a stranded asset.

The future energy system will see rapid and radical changes. In addition to the need for deep decarbonization, decreased energy consumption levels, increasing levels of renewable energy sources, electrification, decentralization, digitalisation and sector coupling are all factors that will have a major impact on the future gas infrastructure.

In discussions about the future energy infrastructure, there is also a debate about the infrastructure for non-fossil gas. As stated before, overoptimistic scenarios for all kinds of renewable/decarbonized gases can be a driver for the continued expansion of fossil gas infrastructure. Only limited amounts of non-fossil gases will be available in the future. In the case of sustainably produced biogas, part of this will be locally used in district heating or injected into the distribution grid. The potential for using the existing transmission infrastructure however is uncertain, and will inevitably strand a lot of the existing gas infrastructure.

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<sup>30</sup> European Commission (2019). State of the Energy Union. COM(2019)175 final

<sup>31</sup> Friends of the Earth Europe (2017). Hiding in plain sight. How the EU's gas lobby is at the heart of EU energy policy making.

[http://www.foeeurope.org/sites/default/files/extractive\\_industries/2017/entso-g\\_fossil\\_free\\_europe\\_report\\_vfinal.pdf](http://www.foeeurope.org/sites/default/files/extractive_industries/2017/entso-g_fossil_free_europe_report_vfinal.pdf)

In the light of all these developments, the EU energy infrastructure policies should be revised. Energy security arguments can no longer ignore climate change. There is a need for a holistic view for tackling energy security considerations and also fully addressing EU and global climate ambitions as well as rapidly changing future energy infrastructure needs. Requests for political or financial support regarding the refit of existing or new infrastructure for the use of non-fossil gas should therefore be rejected unless non-fossil, climate neutral infrastructure or policy alternatives are not available.