
GasNaturally Reflections for COP24

Background

The overall objective of the Paris Agreement is to ‘strengthen the global response to the threat of climate change in the context of sustainable development’. It provides for a durable and dynamic framework to enhance international cooperation towards the agreed long-term goal: to limit the increase in global average temperature to ‘well below 2°C’ and to ‘pursue efforts to limit temperature increase to 1.5 °C above pre-industrial levels’.

Article 4 of the Paris Agreement translates this temperature goal into a long-term climate mitigation pathway, specifying that global emissions should peak as soon as possible and then decline rapidly in order to achieve ‘a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century’ as an essential component of carbon-neutral scenarios.

- **Gas as a component of a carbon-neutral future**

Gas fuels will be needed if the objectives of the Paris Agreement are to be met. Along with today’s natural gas, renewable and decarbonised gases will play a crucial role in the long term, to 2050 and beyond.

These new fuels include:

- CO₂-free green hydrogen from power-to-gas (P2G) processes using renewable electricity;
- CO₂-neutral blue hydrogen produced from natural gas through steam methane reforming (SMR), in combination with carbon capture and storage/use (CCS/CCUS);
- CO₂-neutral biogas and biomethane produced from municipal waste, agricultural residues and sewage;
- CO₂-neutral synthetic methane produced from biogas, hydrogen, P2G in combination with post-combustion CCS.

Throughout Europe, innovative technologies are already being developed that produce renewable and decarbonised gases and inject these into the grid. The advantages of these gases for the energy system include ease of storage (e.g. for seasonal use) and flexibility—gas grids can manage high energy demand fluctuation, while biogas and P2G offer a renewable resource that is not intermittent.

In light of current emission trends, meeting the Paris Agreement's long-term mitigation goal will require unprecedented action. As well as making a real difference in pursuing global climate goals, a shift towards innovative and affordable gas technologies can be expected to improve air quality and enhance economic development and energy security amid growing energy demand, which is expected to increase by around further 30% by 2040 (International Energy Agency, World Energy Outlook, New Policies Scenario, 2018).

GasNaturally subscribes to the approach set out by the International Energy Agency (IEA) in its Sustainable Development Scenario (SDS), which describes a pathway to 2040 for the global energy sector. This proposal keeps the world on track to meet the Paris Agreement's long-term mitigation goals while also ensuring universal access to energy and substantially reducing air pollution. The SDS offers an 'integrated approach to addressing key challenges, recognising that action against climate change must go hand-in-hand with strategies to achieve other Sustainable Development Goals, including to tackle poverty, build economic growth, promote energy security and address a range of other social and environmental protection needs' (IEA, WEO2018).

The SDS responds to the need to increase energy productivity while deploying energy efficiency and renewable energy on a massive scale by switching from coal to natural gas, developing decarbonised and renewable gases and deploying innovative technologies. Together, these measures can help to achieve net-zero or negative emissions, delivering multiple and equitable benefits for climate change mitigation, air quality, energy access and sustainable development.

- **The role of the natural gas industry in supporting ambitious domestic policies**

At the heart of the Paris Agreement are the Nationally Determined Contributions (NDCs) that each country is required to prepare, communicate and maintain regularly. The NDCs embody domestic efforts to reduce national GHG emissions (Article 4, paragraph 2) in a shorter timeframe.

For the NDCs submitted to date, projections show that the 'emission gap' would range from 16–19 GtCO₂e (under the 1.5 °C scenario for 2030) to 11–13.5 GtCO₂e (under the 2 °C scenario). This shows that today's NDCs must be significantly scaled up to avoid an increase in global average temperature in the range of 2.6–4 °C by 2100.

The significant mitigation potential of switching from coal to natural gas in power generation, and of innovative and already proven gas technologies, needs to be widely recognised. By providing affordable energy that is much less carbon-intensive, natural, renewable and decarbonised gases can help to provide an acceptable development pathway to a low-carbon economy, while supporting a high share of variable renewables.

The natural gas industry is ready to take on this challenge. Promoting sustainable development, achieving Sustainable Development Goals (SDGs) and addressing climate change are now integral to the industry's energy planning, technology development and analysis. In its own operations, the industry has pursued continuous improvement in terms of energy efficiency and reduction of GHG emissions, including fugitive methane emissions. Through initiatives such as the Methane Guiding

Principles, Oil and Gas Climate Initiative (OGCI), GasNaturally members are working actively to minimise the impacts of methane emissions and to eliminate uncertainty about this issue across the entire gas value chain.

The natural gas industry expects COP 24 to adopt a comprehensive and detailed rulebook for implementation of the Paris Agreement. Countries and stakeholders need this kind of guidance if they are to engage with a high level of confidence and consistency, and there should be a common five-year timeframe to encourage every country to ensure delivery of its own NDCs.

GasNaturally calls on all countries to engage constructively in the Katowice climate talks in order to secure a conclusive outcome that will facilitate universal climate action as soon as possible.

- **Gas use can help to scale up the ambition of the EU NDC**

The current EU NDC (2030 climate and energy framework) commits to reducing GHG emissions by at least 40% (as compared to 1990 levels) by 2030. Power generation and heating (24%) and transport (27%) are among the largest sources of CO₂ emissions in the EU.

Coal is responsible for 68% of CO₂ emissions from power generation in the EU (IEA, World Energy Outlook 2018); a move from coal to gas would enable a 50% reduction. According to the Eurogas Scenario Study (based on the PRIMES model), switching from coal to natural gas would allow the EU to exceed its GHG emission reduction target for 2030 by 5%. The move from coal to gas would also have significant social and environmental benefits; as compared to coal, power generation based on natural gas emits up to 60 % less CO₂, 80% less NO_x and 99.9% less particulate matter.

Beyond fuel switching, natural and renewable gases support renewable energy deployment. In particular, with an increasing share of variable renewables, gas provides the flexibility needed to meet variations in seasonal demand for electricity. When there is too little wind or sun, modern gas power generation supplies consumers with the electricity they need. As well as providing essential backup for variable renewables, gas infrastructure serves as an affordable, large-scale renewable energy store, using technologies such as hydrogen from P2G. Other low-carbon technologies such as CCS or pyrolysis can also help to overcome the challenges of energy transition.

The gas industry has both the expertise and the experience to develop the storage capacity for large-scale CCS. For example, the Sleipner storage site in Norway, which has been running successfully since 1996, has captured and stored more than 20 million tonnes of CO₂—equivalent to the annual emissions from 10 million cars. The gas industry is also a leader in the construction and operation of pipeline infrastructure, and with some adjustments, part of the existing gas infrastructure could be used in the future for CCS (e.g. for transporting CO₂). Even CCS will not improve the ranking of coal-fired plants as compared to similarly equipped gas-fired facilities. Not only can carbon dioxide be stored safely but it can also be used or processed as an industrial feedstock. Both CCS and CCU can also support large-scale global production of hydrogen from natural gas without CO₂ emissions by means of steam reforming, which would help energy-intensive industries such as the steel sector to decarbonise.

The use of renewable gases has considerable further potential. For example, biomethane (from waste or biomass) and synthetic methane and hydrogen can be used in standalone equipment or blended with natural gas within the existing gas infrastructure. In the transport sector, renewable gases can help the EU to achieve its GHG emissions target of 60% reduction by 2050 while improving air quality even faster through deployment of natural gas-fuelled vehicles (compressed natural gas (CNG) for light, medium and heavy vehicles, liquefied natural gas (LNG) for shipping and freight trucks).

Methane emissions from the gas industry currently account for just 0.6% of all EU GHG emissions. Between 1990 and 2016, the gas industry reduced fugitive methane emissions from natural gas activities by 51%. This significant achievement can be further consolidated by the natural gas industry's ongoing development and enhancement of innovative technologies.

According to the obligations set out in the Paris Agreement, each country's NDC shall reflect its possible ambition. Additionally, successive NDCs shall represent a progression beyond the current NDC (Article 4.3). On that basis, the EU should look to exploit all of the opportunities offered by natural, renewable and decarbonised gases to add value to its energy and transport sector transition and to support the development of renewables.

- **The natural gas industry is fully supportive of the Talanoa Dialogue**

Launched at COP23 and continuing at COP24, the objective of the Talanoa Dialogue as a facilitative initiative involving preparatory and political phases is to take stock of collective global efforts and progress toward the long-term goal of the Paris Agreement. It also aims to support preparation of NDCs, with particular regard to the level of ambition of a country's mitigation policies and measures, and to help countries to prepare for the 'Global Stocktake', a 2023 progress evaluation session established by Article 14 of the Paris Agreement.

The Talanoa Dialogue offers an opportunity to collectively evaluate the progress that has been made and that has yet to be made, and to find ways of achieving the latter in an inclusive fashion. The gas industry is fully committed to contributing to this process, which should highlight the potential of low-carbon transformations, especially through switching from coal to gas. By clarifying the role of natural, decarbonised and renewable gases, this Dialogue can encourage countries to adopt more ambitious NDCs that follow a low-carbon pathway. Our recommendation is that all countries should strive to reduce their use of coal while ensuring a 'just transition' for heavily coal-dependent regions, with due regard to the role of gas in facilitating this process.

The gas industry offers cost-efficient solutions that can contribute to achieving the long-term goal specified in Article 4.1 of the Paris Agreement:

- Switching from coal to natural gas has huge potential for reducing CO₂ emissions.
- Wide application of gas in the heating sector, including gas-based district heating, can significantly improve air quality in European cities.

- In combination with CCS and CCU technologies, natural gas can effectively reduce carbon emissions close to zero.
- Gas also supports renewable energy deployment, notably by providing the requisite flexibility for an electricity system that increasingly uses variable renewables.
- Gas is also produced from renewable sources that can be used in standalone equipment or blended in the existing gas infrastructure.
- Gas offers potential low-cost carbon reduction in the transport sector and by replacing old boilers in the building sector.

Natural, decarbonised and renewable gases provide the backbone for a modern, flexible low-carbon power system, especially when combined with renewable electricity in hybrid applications.