

# POLICY BRIEF

## The EU can reduce global methane emissions by jointly purchasing gas

### Highlights

- The European Union (EU) is likely to face a gas supply-demand gap of 27 bcm in 2023-2024.
- This gap could be reduced by enhancing its partnership with oil and gas producing countries with spare export capacity – particularly Algeria, Egypt and Nigeria – to incentivise the capture and export of gas that is currently wasted (flared, vented and leaked).
- To tap this opportunity the EU could combine two measures in the REPowerEU toolbox: joint gas purchasing and ‘You collect/ we buy’ schemes (purchasing frameworks aimed to incentivise the capture of wasted fossil gasses, including methane, under the EU energy diplomacy). This combination would enable the main barriers preventing greater capture of methane to be addressed while taking advantage of the Union’s leverage: the presence of non-operated joint ventures (NOJVs) controlled by EU-based undertakings in the region; and the upcoming EU Methane Regulation covering domestic emissions and those associated with fossil energy imports.
- This approach would help the EU increase its energy security without triggering unintended policy consequences: compromising on its climate targets; prolonging reliance on fossil fuels; or decelerating the energy transition in developing economies. If successful, the scheme could be replicated in other regions to support achievement of the Global Methane Pledge objectives.

### Authors

Andris Piebalgs, EUI; Maria Olczak, Environmental Defense Fund Europe/Queen Mary University of London



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## 1. Introduction

2022 was a turbulent year for the EU energy system, and the ongoing energy crisis is far from over. The International Energy Agency (IEA) forecasts that the EU may face a gas supply-demand gap of 57 bcm in 2023.<sup>1</sup> While over half this amount (30 bcm) is already covered by actions undertaken by the EU and its 27 member states, the Union may be short of 27 bcm next winter. Apart from security concerns, the availability of additional volumes of gas could help smooth elevated gas prices. Hence, the IEA suggests five types of measures: faster improvements in energy efficiency; a more rapid deployment of renewables; electrification of heat; behaviour changes; and scaling up supply.

While all these are worthwhile, the first four tools are unlikely to bring any meaningful results within the next 12 months. Some measures suggested to increase the supply of gas – more production of biogas/biomethane and low-emission hydrogen – will also take longer to scale up across Europe. However, what could make a difference over the next 12-36 months is a combination of two tools: using joint gas purchasing; and ‘You collect/we buy’ schemes to incentivise the capture of gas that is currently wasted (flared, vented, leaked) in gas producing countries with spare export capacity, e.g. Algeria, Egypt and Nigeria.

This approach would help the EU increase its energy security without triggering unintended policy consequences: compromising on its climate targets; prolonging reliance on fossil fuels; or decelerating the energy transition in developing economies. On the contrary, the scheme could help the EU and its fossil energy suppliers deliver on their international commitments such as the Paris Agreement (all the above countries included methane/flaring-reduction targets and measures in their Nationally Determined Contributions) and the Global Methane Pledge (GMP) by reducing GHG emissions and improving air quality. If successful, ‘You collect/we buy’ schemes could serve as a framework for cooperation with oil and gas companies, particularly national oil companies (NOCs) in fossil producing countries, in line with the Joint Declaration from Energy Importers and Exporters on Reducing Greenhouse Gas Emissions from Fossil Fuels.<sup>2</sup>

## 2. How much gas, where from and at what cost?

Over the last few months, several studies have tackled the following questions: how much otherwise wasted gas could be captured and exported to the EU via existing infrastructure, where from and at what cost? Unsurprisingly, all of them point mostly to Africa – particularly Algeria, Egypt and Nigeria. The region is well-connected to Europe with four operational pipelines (83 bcm a year) and four LNG terminals (29 bcm a year) and a total technical capacity of 110 bcm a year.<sup>3</sup> However, the studies provide diverging estimates of how much and how soon additional gas volumes will be available.

The IEA estimates that 4 bcm more natural gas could be made available to the European Union over the next 12 months, mostly from Algeria and Egypt.<sup>1</sup> According to the IEA, unlocking this opportunity will require coordinated efforts by African exporting nations and incentives from purchasers to implement methane leak detection and repair (LDAR) programmes and target routine flaring. With more time, the potential is much greater: only in the first three quarters of 2022, roughly 20 bcm of fossil gas has been wasted (flared and vented) in African countries with spare export capacity – Algeria, Angola, Egypt and Nigeria. According to IEA own analysis, it is technically feasible to reduce these emissions by at least 75%.<sup>4</sup>

Another study, which informed the IEA’s analysis, estimates that within the next 12-24 months up to 23 bcm of gas could be captured in Algeria, Libya, Tunisia and Egypt and exported to Europe.<sup>3</sup> Up to half this volume could be recovered with a total budget of USD 1.5-4 billion (EUR 1.4-3.8 billion) capital investment, mostly by targeting currently flared gas: adding equipment to separate and compress the gas, installing additional gas trunk pipelines and occasionally enhancements at processing facilities. These measures are expected to reduce greenhouse gas emissions in these countries by as much as 86% and reduce air pollution.<sup>3</sup>

Finally, S&P Global Commodities Insights in cooperation with the Environmental Defense Fund estimates that in the next 24-36 months up to 40 bcm out of 112 bcm can be economically captured and exported to Europe.<sup>5</sup> While the greatest potential is in North America, it is constrained by export capacity and infrastructure bottlenecks in Europe. In contrast, African countries (Algeria,

Libya, Nigeria and Egypt) could capture and export up to 35 bcm of fossil gas to Europe. This analysis also shows a narrow window of opportunity – while elevated gas prices have improved the economics of gas capture projects compared to pre-war price expectations, any delays in projects are likely to result in reduced revenue, e.g. delaying a project from 2023 to 2026 is expected to reduce revenue by ~50%.

### 3. Addressing the barriers to methane capture

Despite the strong case for capturing gas currently wasted in Africa, significant barriers need to be addressed to unlock this opportunity. While the challenges are country-specific and need to be analysed in greater detail, the main ones are related to the availability of capital (upfront investments to identify, define and execute methane abatement projects) and security considerations.<sup>1,3,5,6</sup> Natural gas production in the region is controlled by a few dominant NOCs, which may not be in a position to benefit from current windfall profits due to government decisions, and at the same time they are facing problems in attracting capital from investors due to security risks and the opportunity cost, as methane abatement projects compete for capital with new gas development projects and oil production in the case of gas associated with oil fields.

Hence, the missing puzzle is financial support combined with additional (political and commercial) gas offtake guarantees. For this objective, the EU could use the REPowerEU toolbox. An EU Energy Platform for the purchase of gas, LNG and hydrogen was established on 7 April 2022 as a voluntary coordination mechanism to pool demand to leverage the Union's purchasing power, international outreach and efficient use of existing infrastructure.<sup>7</sup> The platform could be coupled with 'You collect/we buy' schemes, whereby the EU and its partners – the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and the World Bank – would create incentives for rapid methane capture in EU fossil fuel exporters.<sup>8</sup>

A joint purchasing mechanism could be used to aggregate the demand and collect binding offers from existing gas suppliers or third-party methane capture project developers. Due to the positive environmental effect, the remuneration for the

gas collected could come at a premium. Hence, conclusion of an agreement for gas delivery in the future via the EU Energy Platform could be the basis for a project to receive financial and/or technical assistance (e.g. for government officials/regulators to formulate Methane Action Plan and for NOCs to implement it) under the 'You collect/we buy' scheme in proportion to the expected methane emissions reduction. Similarly to the Just Energy Transition Partnerships (JETPs), the public sector finance in the form of grants and loans from governments, state-owned banks and multilateral development banks could be used to mobilise and facilitate private finance e.g. commercial banks for methane reduction projects.<sup>9</sup> The extent and the form of the assistance should be decided on a case-by-case basis.

### 4. Taking advantage of EU leverage

The EU has two types of leverage to incentivise greater gas capture in Africa: non-operated joint ventures (NOJVs) owned by the EU-based undertakings; and the upcoming EU Methane Regulation. NOJVs are assets in which one company holds an equity stake but which are operated and managed by another company. JVs are common in the oil and gas business. On average, 50% of the equity production by supermajors (BP, Chevron, ConocoPhillips, Eni, ExxonMobil, Shell, and TotalEnergies) comes through JVs mostly run in cooperation with local companies owned by a national government (NOCs).<sup>8</sup> Through JVs, the companies share risks and profits, get access to new energy sources and share technology and experience. However, this does not imply that the same operational practices – e.g. in terms of methane emissions management – are applied to both operated and non-operated assets. On the contrary, regions with the highest non-operated production from NOJVs have high levels of gas flaring, particularly the Middle East and Africa.<sup>8</sup> Until now the management and amount of emissions from NOC operations has been largely unknown, but there is increasing regulatory and investors' pressure on integrated oil and gas companies (IOCs), particularly those based in the EU and the US, to disclose this information and influence their partners.

EU-based companies (ENI, Shell, TotalEnergies, and BP) are engaged in NOJVs with NOCs active in Egypt, Nigeria, Libya and Algeria and can influence their partners in different ways: by creating a methane

reduction subcommittee<sup>10</sup>; through board/operating committee resolutions; or by including additional requirements concerning methane emissions quantification and control in NOJV agreements. However, these are challenging tasks due to the complex NOJV governance structure requiring cooperation with various stakeholders with different priorities: board members, parent company executives and government regulators.<sup>11</sup> As an incentive, NOCs could be granted financial support under ‘You collect/we buy’ schemes for such projects provided they offer additional gas via the EU Energy Platform. Another caveat is that the presence of IOCs varies among African countries: it is more pronounced in Egypt, Libya and Nigeria than in Algeria and Tunisia. Hence, this leverage may not always be sufficient. Additional pressure on NOJV reporting and emissions mitigation comes from EU legislation. The proposed EU Methane Regulation targets methane emissions occurring outside the Union in two ways: it imposes monitoring, reporting and verification (MRV) requirements on NOJVs owned by an entity established in the EU; and introduces additional information provision requirements for energy importers.<sup>12</sup> Given that NOJVs owned by EU-based undertakings will soon be required to report emissions from their facilities, this incentive scheme could support enforcement of the EU Methane Regulation. However, in order to provide an even stronger incentive the regulation could be enhanced. One way to do this would be to unify the time horizons for emission monitoring and reporting obligations in operated and non-operated assets. In the current version (art. 12 of the Regulation), NOJVs have an additional year to submit a report providing direct measurements of source-level methane emissions (36 months from the date of entry into force of the Regulation) and to complement it with measurements of site-level methane emissions (48 months) compared with operated assets (24 months and 36 months respectively).

Other potential policy options include: a gradual introduction of minimum methane intensity requirements that all the imported gas should meet combined with a fee for excessive intensity<sup>13</sup> or extending the proposed EU carbon border tax – the Carbon Border Adjustment Mechanism (CBAM)<sup>14</sup> – to cover methane emissions from the imported fossil energy. The scope of the original CBAM proposal has already been extended to cover imported hydrogen, based on a provisional

agreement between the Council and the European Parliament Hydrogen produced through e.g. Steam Methane Reforming of natural gas is already covered under the EU ETS, yet it is eligible for free allowances due to the potential risk of carbon leakage.<sup>15</sup> This approach would provide regulatory certainty for companies without tightening the gas supply overnight. However, both methane intensity standard and CBAM extension are likely to take more time to implement. In order to be eligible under the CBAM, the scope of the EU Emissions Trading System (EU ETS) should be extended to cover methane emissions, which is currently not the case.

## 5. Conditionality

The studies mentioned in section 1 show the opportunity but also the challenges related to accurate methane emissions quantification. The divergence in the estimates is a result of different time horizons and also different estimation assumptions, e.g. IEA and Capteiro use 92% flaring efficiency, and S&P 98%. Making the funding under ‘You collect/we buy’ schemes conditional on the methane emissions reduction achieved requires accurate identification, quantification and verification. Hence, it is advised that the EU system should introduce a requirement that the baseline methane emissions and reductions achieved are identified and tracked in line with independent standards such as OGMP2.0.<sup>16</sup> Currently, none of the major NOCs operating in Africa are OGMP2.0 members (except an operator of the Medgaz pipeline, Medgaz SA, which has Algerian state-run Sonatrach as its majority shareholder) but their European NOJV partners are. Moreover, the information on the mitigation measures adopted (LDAR programmes, elimination of routine flaring) should be transparent.

The EU could also use tools to occasionally verify that there are no super-emitters (the highest emitting sources) at the facilities operated by a company/operator participating in the scheme, e.g. through the International Methane Emissions Observatory’s Methane Alert and Response System (MARS) established at COP27.<sup>17</sup> The MARS has four components: 1) it uses a constellation of various satellites (ESA TROPOMI, ASI PRISMA; ESA Sentinel-2; NASA Landsat; DLR EnMAP) and datasets to identify and attribute methane plumes and hot spots to specific locations/operators; 2) it notifies and engages companies and governments

on large emission events identified in the vicinity of their jurisdiction or operations; 3) methane abatement measures are undertaken by notified stakeholders with support from MARS partners; 4) verification, making data and analysis publicly available and continual improvement possible. The effectiveness of MARS in reducing super-emitting events is still to be proven and rests on the ability to reduce the time between emitting source detection and abatement, alongside elimination of recurring super-emitting events.

## 6. Conclusions

The ongoing energy crisis shows that climate and security concerns go hand in hand. While RePowerEU provides a set of medium- and long-term solutions, the potential gas supply-demand gap (27 bcm) requires EU and national officials to act now. This urgency puts methane reduction at the top of technically and economically viable solutions. Technologies to reduce methane emissions from oil and gas operations by ~75% already exist and can pay for themselves, as the cost of abatement measures can be balanced with the revenue from selling the methane captured – the main component of natural gas.<sup>18</sup> Hence, one way to decrease the gas supply-demand gap is by enhancing partnerships with oil and gas producing countries with spare export capacity – particularly Algeria, Egypt and Nigeria – to incentivise the capture and export of gas that is currently wasted (flared, vented and leaked).

In contrast to some of the crisis response measures already deployed (e.g. switching to coal-based power generation), methane abatement is fully aligned with the EU climate targets and international commitments of which the EU is one of the architects, e.g. the Global Methane Pledge, without risking new long-term dependencies on fossil fuels. At the same time, reducing methane emissions is one of the few measures that are beneficial to both the EU and its neighbourhood – by lowering the GHG footprint of oil and gas production and delivering on climate objectives (Egypt, Libya, Nigeria and Tunisia are GMP members, and all the countries analysed have methane reduction targets specified in their NDCs) and improving air quality.

For this objective, the EU could combine its energy purchase platform with financial and technical support (e.g. for NOCs and local regulators) via ‘You collect/we buy’ schemes. At the same time the

EU could use its significant leverage – the presence of non-operated joint ventures (NOJVs) owned by EU-based undertakings and the upcoming EU Methane Regulation – to target emissions occurring outside the Union. This scheme should be subject to conditions: accurate identification, quantification and verification of methane emissions in line with international standards, e.g. OGMP2.0, and early detection of super-emitters. If successful, ‘You collect/we buy’ schemes could be replicated elsewhere, e.g. by the signatories of the Joint Declaration from Energy Importers and Exporters on Reducing Greenhouse Gas Emissions from Fossil Fuels.

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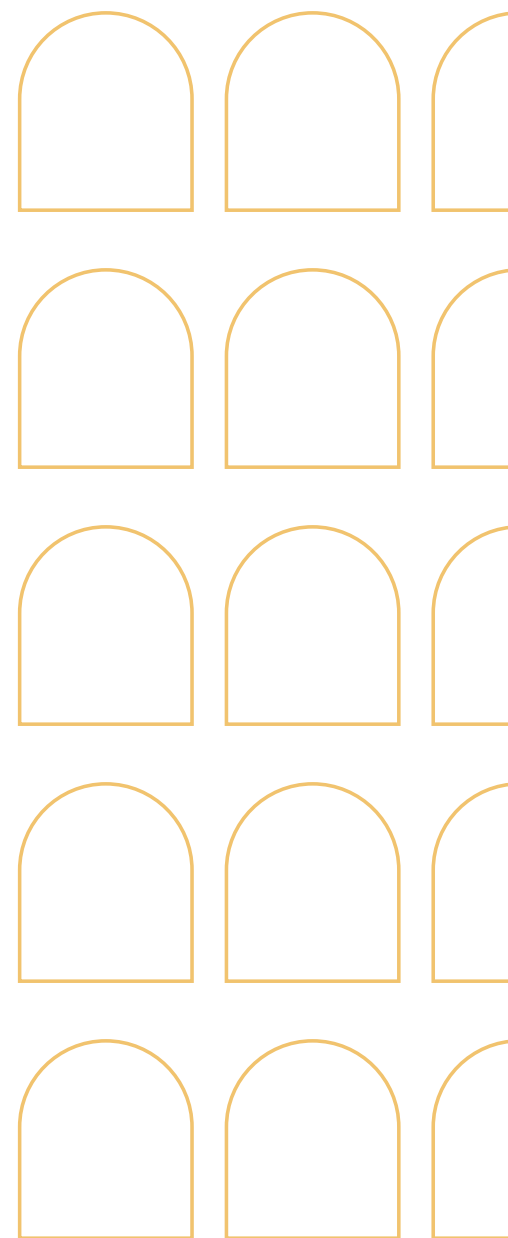
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