Inclusion of Methane Abatement Measures in Transition Finance

Oil and Gas, and Agrifood Sectors

Prepared by Climate Bonds Initiative

Contents

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About the Climate Bonds Initiative: Climate Bonds is an international investor-focused not-for-profit organisation working to mobilise the bond market for climate change solutions. It promotes investment in projects and assets needed for a rapid transition to a low-carbon and climate-resilient economy. The mission is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased access to capital markets to meet climate and greenhouse gas (GHG) emission reduction goals.

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Report summary

Rapid methane abatement to achieve the Paris Agreement goal of 1.5°C ought to be a top priority for transition finance not only for emissions reduction but also the additional positive environmental and social impacts including improving air quality and health, energy security, and resilience. To this end, taskforces of industry experts, financial institutions, and non-governmental organisations (NGOs) in the oil and gas, and agrifood sectors have collaborated to design credible sustainable investments for methane abatement. The resulting Climate Bonds Initiative (Climate Bonds) Food Value Chain, Agriculture Production, and Alternative Proteins Sector Criteria and guidance developed by the Methane Finance Working Group (MFWG) for the oil and gas sector support the identification of eligible economic activities, abatement measures, metrics and targets to aid the structuring of related sustainable debt.[1,2]

The success of the green bond market stems from clarity around the use of proceeds (UOP), which contribute to the global shift to a net-zero economy when used for climate solutions irrespective of how advanced the issuer is in its transition trajectory. Similarly, the latest expert-led criteria and guidance on financing methane abatement measures will ensure a substantial contribution, avoid carbon lock-in, and can be deployed by corporates in various stages along their transition journey. Adopting a transition finance mandate includes identifying which investments are needed at a given time to align with the goals of the Paris Agreement and encourages structuring the financial instruments accordingly, so that proceeds are ring-fenced to ensure short-term and long-term impact.

Climate Bonds' analysis of methane treatment in the transition plans of several oil and gas corporates demonstrates that methane abatement forms part of their short-term strategy. While methane is acknowledged as a material environmental impact by corporates in the agrifood sector, they have not set specific methane emission reduction targets. This is partly explained by the challenges agrifood corporates face in tracking their supply chain and identifying the correct set of abatement measures because strong disparities exist in the progress of methane abatement strategies among corporates within each sector. When looking at the broader climate or net-zero strategies of both sectors, none of the corporates analysed had announced an intention to scale back production, raising questions as to the credibility of their net-zero commitment.

Climate Bonds latest Sector Criteria and the recently published MFWG guidance identify appropriate project categories for inclusion in the sustainable finance frameworks of corporates in both sectors, irrespective of their level of ambition in transitioning. For example, in the agrifood sector, Climate Bonds Food Value Chain, Alternative Proteins, and Agriculture Production Sector Criteria identify a broad range of eligible measures and activities that can support corporates, particularly those at the early stage of the transition journey, in raising finance via UOP instruments.

Oil and gas corporates can play a leading role in supporting the decarbonisation of other industries, and the major international companies are seizing the opportunities brought by the need for biofuels, carbon capture, geothermal energy etc. UOP financing can be leveraged to scale these climate solutions whilst also addressing methane abatement, contributing to the dual objective of decarbonising and shifting business models to a green economy.

Linking the impact of UOP debt to the climate strategy of the region where the proceeds will be used to build climate solutions, can support the ambitions of oil and gas corporates as contributors to the transition to net-zero.

Introduction

Methane is a potent greenhouse gas (GHG) which causes 86 times more warming than carbon dioxide over 20 years. Its impact is short-lived yet rapid so reducing methane emissions offers immediate benefits, making it a powerful strategy for limiting global warming to 1.5°C.[3]

According to the International Energy Agency (IEA), three sectors account for 98% of human-caused emissions: AFOLU (agriculture, forestry and other land use) (41%); fossil fuels (38%), encompassing coal, oil, and natural gas; and waste (20%), including both solid waste and wastewater. Deploying known solutions across economic sectors could cut the amount of methane from human sources in half by 2030, avoiding 0.25°C by 2050, and more than 0.5°C by 2100.[4]

Financing methane abatement measures is a legitimate use of sustainable finance which has the extra benefit of enhancing energy security, reducing transition risk and being cost effective.[5] However, this requires the identification of legitimate sustainable finance project categories that will contribute to the methane abatement of corporates in the oil and gas, and agrifood sectors whose business model is significantly challenged by the shift to net zero.

This report describes the strong social and environmental benefits of abating methane, illustrates how methane abatement measures are currently financed by both the public debt market and the private market and how they are integrated into the climate strategy of a representative sample of corporates in the oil and gas and agrifood sectors. The first section will conclude by referencing the need for safeguards when considering methane abatement financing as a sustainable strategy.

The second section explains how the latest Climate Bonds and MFWG sectoral guidance can be used to identify legitimate sustainable debt projects for methane abatement. The report also discusses how this guidance can be deployed to contribute to the transition of various systems; from corporates to regions in line with the goals of Paris Agreement.

1. Current approach to methane abatement treatment and financing

1.1. Methane abatement financing: an investment with strong impact potential

According to the Climate Policy Initiative (CPI), as of 2021/2022, 70% of methane abatement finance derived from private sources, amounting to USD9.6bn.[6] However this is marginal compared to the required USD48bn per year by 2030 estimated by CPI across all sectors, and the International Energy Agency (IEA) assessment of USD100bn until 2030 for oil and gas.[7]

Methane abatement measures are in many instances an economic opportunity as the IEA estimates that 40% of all upstream oil and gas methane emissions worldwide could have been avoided at no net cost in 2024. The Global Methane Pledge (GMP) has emphasised that more than half of the available agricultural methane abatement options are low-cost or even negative cost, particularly in the livestock and rice sectors.[8] Additionally, methane abatement measures present a multitude of potential positive impacts in addition to keeping the goals of Paris Agreement reachable.

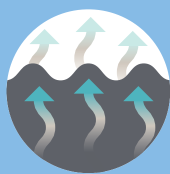
- **In the agrifood sector**: collecting manure can indirectly lead to a reduction of various pollutants in the soil, enhance biodiversity, and be used to produce biogas and fertiliser (see the box on biogas).[9]

- **In the oil and gas sector**:
  - A reduction in flaring and venting activities would prevent health related issues due to poor air quality.[10]
  - Methane is also indirectly responsible for an increase in tropospheric ozone that exacerbates climate change, health issues, and agricultural yield drop.[11]

However, safeguards must be imposed to mitigate any negative impact on other environmental objectives. For example:

- The Intergovernmental Panel on Climate Change (IPCC) explicitly identifies that reduced consumption of animal sourced foods (especially from ruminants) and transitioning towards more plant-based consumption is an important pathway to reducing agricultural emissions and pressure on land use.[12] Therefore, scaling the manufacture of biogas from cattle manure could lock in farm models that should be discouraged in a pathway to net zero. The origin of the biomass feedstock in general should be sustainable and be subject to a life-cycle analysis that demonstrates clear emissions reduction.[13]
- According to the IEA, evidence suggests that today's biogas and biomethane plants emit methane emissions in a range between 2%-5.5% of their output, far above average levels in the oil and gas industry.[14]
- Financing methane abatement measures in the oil and gas sector should not lead to additional emissions lock-in.

Biogas and biomethane production: an example of a circular economy model



Asset manager Meridian operates a portfolio of waste-to-energy investments that help reduce methane emissions and provide revenue to local communities.

One example is the Agrimaine Biogas Cogeneration plant which produces electricity and heat directly sold to a local cheese factory, where dairy farmers earn a share of the profits from the electricity and heat generated by supplying their waste as feedstock. Farmers also receive a share of the plant digestate as an ecologically-friendly fertiliser which in turn reduces their input costs.[15,16]

Biogases when locally produced are low-emission fuels created from organic waste, which can bring many benefits locally including energy security, fertilisers, waste management, clean cooking in emerging markets, a source of income for farmers, and local employment. The Agrimaine Biogas Cogeneration plant example demonstrates how this can become an essential part of a circular economy model and benefit both local agriculture and the industrial ecosystem.[17]

The numerous advantages of bioenergy have positioned the technology as a central lever of a national energy strategy and the technology is being supported by major oil and gas corporates which are investing in sizeable production facilities. It could also be supported by smaller companies and recent innovation in the form of biogas liquefaction shows that the on-farm model could be scaled further.[18]

To ensure impact, a localised holistic approach to assessing each project is required. Additionally, continuous monitoring and mitigation of potential negative externalities is generally necessary because scaling of methane abatement solutions should not be at the expense of longer-term needs or the broader ecosystem.[19] This is where transition finance tools and guidance can help.

The objective of transition finance is to channel capital into an economy-wide transition to net zero that is consistent with the goals of the Paris Agreement. Transitioning is primarily about mitigating emissions while using a holistic approach that factors in the need for adaptation and resilience, environmental protection, and a just transition. Transition finance must ensure that the eligible projects will bring impact at a pace that aims to ensure the temperature increase is limited to 1.5°C.

Transition finance is typically operationalised either at activity level via UOP instruments, or project financing, or at entity level via equity or general corporate debt financing. The following two sections examine the current treatment of methane abatement in UOP and in the climate strategy, and sustainability-linked financing of a representative sample of entities.

1.2. Existing use of proceeds for methane abatement

Labelled bonds are vital instruments that can support decarbonisation by either financing assets, activities or projects (UOP bonds such as green or sustainability bonds) or targeting financing at the entity level (sustainability-linked bonds (SLBs)).

Climate Bonds green, social and sustainability, and SLB datasets provide a platform through which labelled debt market instruments can be closely monitored. As of the end of 2024, Climate Bonds had recorded USD7.57tn of cumulative GSS+ volume of which USD6.23tn was found to be aligned with Climate Bonds dataset methodologies.[20]

In 2023/2024, Climate Bonds recorded USD14.5bn of UOP bonds which included methane abatement projects in the AFOLU sector. Examples of projects include:

- research and development;
- livestock projects that reduce methane emissions e.g., animal health and husbandry, manure management, improved nutrition;
- optimised feed strategies for livestock (e.g., use of feed additives);
- waste to energy projects sourced from livestock manure.

Financial institutions, such as the International Finance Corporation (IFC) and the Italian bank Intesa Sanpaolo SpA and sovereigns such as the Government of Fiji, are the main issuers as the UOP bond market to date has struggled to attract issuance by those non-financial corporates that address methane abatement. Appendix 3 lists some of these labelled bonds. Climate Bonds Sector Criteria and the MFWG guidance should encourage issuers operating in a diverse range of corporate sectors to include methane abatement measures in transition finance instruments.

1.3. Treatment of methane abatement in entity-level labelled debt and climate strategies

Transition plans are broadly regarded as a crucial element to ensure credibility of entity-level financing and corporates at various stages in their transition trajectory will refine their transition plans over time.[21,22] Corporates in the early stage are typically not able to commit to short-term decarbonisation targets in line with global 1.5°C aligned benchmarks or to include all material sources of scope 3 emissions. They can however begin by investing in climate solutions while they establish a forward-looking strategy. Climate Bonds in collaboration with the Institutional Investors Group on Climate Change (IIGCC) and various asset managers have proposed tagging primary and secondary general purpose investment as transition finance when the corporate agrees to the following:[23]

- A commitment to net zero at board level and to no new fossil-fuel capacity.
- Setting short-term targets aligned with a credible science-based benchmark and without using offsets.
- Identifying the technologically feasible and financial means to reach such targets.
- Identifying which levers it could potentially rely on over a longer timeframe.
- Annual (re)assessment and disclosure of the principle risks and uncertainties relating to delivery of the decarbonisation levers.
- Demonstrating continuous improvements via trackable annual KPIs.

It proposes that transition finance is accessible from the moment the corporate commits to action on a credible short-term path but identifies a forward-looking vision, even if it doesn't have all the technological and financial means to do so at that time. This is a longer-term view that facilitates collective action and is essential to lift collective barriers to transitioning. Climate Bonds has selected ten agrifood corporates and ten oil and gas corporates to identify best practices within each sector and potential transition finance instruments relating to the current treatment of methane in their transition plans.

Activity-level and entity-level financing

Activity-level sustainable financing targets specific assets, projects or measures that contribute to environmental, social or adaption and resilience objectives, irrespective of the issuer's broader climate performance. The instruments are typically UOP bonds or project finance. Activity-level financing allows high-emitting sectors to begin decarbonising through targeted projects.

Entity-level sustainable financing is a form of general corporate financing and is based on the overall climate strategy and performance of the issuer. The instruments are typically sustainability-linked debt (SLD). The proceeds are therefore not ring-fenced but the corporate should disclose a credible and science-based transition strategy.[24]

Case studies of methane abatement in agrifood corporates

The companies selected reflect current practices in methane abatement across the three most significant methane-emitting sub-sectors of the food and agriculture industry: meat, dairy, and rice.

- **Meat subsector**: WH Group, JBS, Marfrig, Tyson Foods.
- **Dairy subsector**: Dairy Farmers of America (DFA), Danone, Nestlé, Arla.
- **Rice subsector**: Olam Group, AB InBev.

While all selected entities rank among the largest firms in their respective sectors by revenue, production capacity, and global footprint, they are of particular interest for the present study as:

- their transnational operations and presence across many stages of the value chain offer multiple intervention opportunities for methane reduction, and
- they can leverage their investment capacity towards various abatement strategies and research & development (R&D).

The summary of the findings for the three subsectors is presented in the appendices.

The corporate transition plan analysis shows that the shift to net zero and the need to move towards more sustainable practice is central to the strategy of most corporates. The vast majority disclose their GHG emissions along the three scopes (all except Tyson Foods), have set targets, and implemented a certain number of strategies to reduce their climate impact. While corporates in the dairy and rice sub-sector have validated targets with the Science Based Targets initiative (SBTi), the level of commitment is not as strong in the meat subsector where only Marfrig has done so and includes scope 3.

Corporates show a greater divergence in their approach with respect to methane emissions, where only two corporates disclose these separately. The fragmentation of the value chain coupled with the need to trial a multitude of potential measures at a local level will make it difficult for corporates to establish methane emission reduction targets early on unless they diversify away from this area. It is apparent from the case studies that the major corporates in the sector are moving toward integration of methane abatement in their climate strategy; however, there remains a strong disparity in the extent of that integration.

Climate Bonds recommends that corporates which cannot yet align to methane emission targets set other objectives that demonstrate an ongoing and systematic strategy to abate methane. These should include targets on traceability and pilot projects, with details on how this will ensure coverage of the corporate's sources of methane emission.

Accurate methane emission measurement in the oil and gas sector is challenging

Methane is emitted at various stages of the oil and gas extraction process and transportation, either deliberately or due to leaks.[25] Emission estimates are subject to significant uncertainty over the magnitude of emission sources and their variability. Some of the largest emitting events are the result of accidents and these might contribute to a large level of emissions from oil and gas operations. Assisting corporates in reducing methane emission is about supporting the establishment of strong measurement, validation, and reporting systems as well as supporting abatement measures.

Case studies of methane abatement in oil and gas corporates

The ten corporates selected are a mix of major international corporates with headquarters in the USA, Europe, and Japan, and mid-sized entities in Europe and the USA, National Oil Companies (NOCs), a natural gas transport and storage corporate, and a provider of engineering solutions for the oil and gas industry. The selection ensured the inclusion of a few international oil corporations (IOCs) and NOCs and coverage of various regions and sizes in the upstream sector. Snam and Baker Hughes were added to include a mid-stream entity that has been actively involved in transition finance and an enabler developing methane abatement solutions.

- **Major internationals**: ExxonMobil, Eni, Inpex
- **Mid-sized entities**: Devon, Galp
- **National Oil Companies (NOCs)**: Petrobas, Kazmunaigas, Romgas
- **Natural gas transport and storage company**: Snam
- **Engineering solutions provider for oil and gas**: Baker Hughes

The overview of the oil and gas transition plans of the eight upstream corporates illustrates the dilemma facing the transition finance ecosystem with respect to supporting the sector. Eni is the only provider among the upstream producers with a scope 3 emissions reduction target that it plans to lower due to the scaling of its net-zero businesses. All corporates have however identified the business opportunities that the transition to net-zero offers. Mature corporates such as ExxonMobil, Snam, and Eni are investing in infrastructure to support the decarbonisation of industrial ecosystems currently focusing on their domestic markets. Those include bioenergy, carbon capture and storage (CCS/CCUS), hydrogen, and climate solutions that have the most technological overlap with their core business and have been identified as eligible UOP in regional and national taxonomies. In parallel, upstream corporates continue to support or expand their fossil-fuel businesses running various future global energy scenarios to justify the expansion and to look at the resilience of their businesses. Of these, none addressed what their market share of total oil production should be under any of these various scenarios. Carbon Tracker published a recent report that raises strong doubt about the ability or willingness of the sector to set itself on a pathway to align with the Paris Agreement goals.[26]

Climate Bonds believes that entities expanding fossil fuel capacity and without scope three emission reduction targets are not implementing a meaningful transition strategy, and therefore could not deploy SLD with any credibility. So how can transition finance practitioners position themselves when considering entity level financing?

Snam and Eni have taken an approach that separates the fossil-fuel business finance from climate solutions, which informs sustainable debt investors of potential avenues. Essentially, it ring-fences financing to specific levels:[27]

- Assets, with the deployment of climate solutions or enabling solutions via UOP financing.

- Regions, via engagement with the main energy and industrial stakeholders and in particular NOCs to work on a credible regional transition plan which ring-fences finance for projects supporting the transition plan of that region. This could also apply to multinational corporates with a major role in the current and future reconversion of the energy supply in regions such as Eni and Snam in Italy, or Exxon on the US gulf coast.

Methane abatement is central to the strategy of oil and gas companies. Of the nine corporates analysed (excluding Baker Hughes for this analysis), seven have joined the Oil and Gas Methane Partnership 2.0 (OGMP). The sample captures various levels of maturity on the OGMP2.0 scale to the gold standard pathway and disclosure, highlighting the need to facilitate the investment for a robust measurement verification and reporting (MVR) system.

In terms of strategy delivery, the reduction of methane is a key scope 1 decarbonisation lever so the more advanced the corporate decarbonisation strategy, the more detailed its methane abatement strategy. Abatement levers are however never provided at asset level nor are they location specific so the level of assurance on the disclosure of emissions remains unclear. Independent validation of the complete coverage of assets and an independent assessment of methane emission remains paramount, which OGMP2.0 provides. Finally, in terms of engagement, most corporates have joined at least one initiative for methane abatement. Despite this, there is little or no indication of engagement on methane abatement measures on non-operated assets nor the treatment of decommissioned sites even among the most advanced corporates.

Climate Bonds recommends that corporates commit to OGMP 2.0 for transparent and accurate reporting of methane emissions. Corporates with generic emission factor inventories, aligned with OGMP level 3 or above, should set a physical intensity target that aligns with the IEA net-zero emissions pathway recommendation at a minimum. Corporates should commit to ending routine flaring and work on decreasing non-routine flaring while disclosing in a more systematic way the strategy deployed for each of their operated assets, decommissioned sites, and over time non-operated assets.

1.4. Illustration of entity-level labelled debt

A limited number of corporates in the oil and gas sector have issued SLBs.

Snam's green and sustainability-linked finance frameworks.[28]

The Italian gas transport and storage provider, Snam, combines a green and sustainability-linked format in its 2025 sustainable finance framework. Both are designed to contribute materially to methane abatement emissions:

In the green bond framework, all activities are aligned with the EU Taxonomy and include the development of a new climate solutions business that would ultimately result in a reduction in fossil-fuel consumption (bioenergy, and hydrogen production and transport). It also includes information and communication technologies that could facilitate methane leak detection and the retrofit of gas transmission and distribution networks to enable the integration of hydrogen and other low-carbon gases in the network. Alignment of the eligible activities to the EU Taxonomy enhances the credibility of the issuance.

In its SLB framework, targets are set on Snam's regulated business only (natural gas transport and storage) which accounts for more than 90% of its emissions. The framework identifies two climate-related KPIs; one covering scope 1 and 2 GHG emissions, and the other covering scope 3 (this does not include the emissions from the combustion of transported gas, as per carbon accounting practices set by the Greenhouse Gas Protocol). Methane emissions reduction measures are expected to contribute to a minimum of 16% of the targets. The framework could be strengthened by adding a KPI on methane abatement. Further analysis on Snam's transition plan can be found in Appendix 1.

Section 2 of this report presents guidance that details how the credibility of the KPIs can be further enhanced.

Gasumie's sustainable finance framework:[29]

Gasunie is the Dutch state-owned natural gas transport and storage company. Its green and SLB financing framework has many similarities with Snam, as they are both regulated businesses working in the same sector and subject to the same EU policy directives.

Gasunie 2025 sustainability-linked financing framework has a KPI on absolute annual methane emissions. The reduction target is about 55% from a 2020 baseline and the framework provides further justification of why the emission reduction is judged ambitious and in line with international guidance. Gasunie is an OGMP 2.0 signatory, which over time could strengthen the credibility of its methane reporting. The credibility of the methane abatement strategy is further supported by an extensive list of the levers Gasunie intends to use to reduce methane emissions.

Kinetik's sustainability-linked framework:[30]

Kinetik is an American midstream operator. The second KPI of Kinetik's framework is methane emissions intensity, with a 30% reduction target by 2030 relative to the 2021 baseline. The methane intensity is defined as metric tons of methane emitted from operating facilities per metric tons of methane in total gas gathered. Given the challenge of methane emission measurement, the framework would be improved if linked to a KPI based on the OGMP 2.0 protocol.

Conclusion

The credibility of entity-level transition financing is impacted when there is either a lack of commitment to no new fossil capacity or scope 3 decarbonisation targets do not align with a science-based 1.5°C aligned decarbonisation pathway. Transition finance at the entity level currently confronts contradicting objectives: from one perspective it requires a commitment to short-term emission reduction targets in line with global benchmarks that ensures corporates act in the short-term, which demands alignment to a higher level of decarbonisation ambition than the corporate may currently be able to deliver. Yet the real objective is to ensure that corporates start acting immediately, which might require scaling down the short-term level of ambition. The danger is that a lack of ambition can result in locking-in higher levels of emission in the future, for example, an investment in a natural gas power plant to replace coal instead of a solar power plant.

Some transition finance practitioners add a safeguard in their investment criteria to ensure that such a corporate investment would not lead to a lock-in of carbon emissions.[31] This could ensure the positive long-term impact of the investment, even in the absence of a longer-term strategy or if the entity's short-term targets are not aligned with a Paris-aligned pathway. Carbon lock-in can be defined as the dynamic whereby prior decisions relating to GHG-emitting activities and their supporting networks constrain future paths, making it more challenging, even impossible, to subsequently pursue more optimal paths toward low-carbon objectives.[32] While there is no market standard for systematically estimating carbon lock-in risk, research from the Stockholm Environment Institute proposed an approach resting on four central dimensions: equipment lifetime, the scale of the increase in GHG emissions, financial barriers to replacement with low-carbon alternatives, and 'techno-institutional' mechanisms that further strengthen high-carbon technologies at the expense of low-carbon ones.[33] This confirms that estimating the risk of lock-in is context and activity dependant, thereby difficult to estimate or standardise.

Support for corporates in the early stage of their transition requires additional safeguards to ensure the finance will effectively have a substantial and long-term contribution to the decarbonisation. While activity-level financing is one way to ring-fence the proceeds and ensure impact, it relies on careful selection of the eligible activities. Section 2 presents the expert-led guidance that has recently been released to identify methane abatement measures or activities that make a substantial contribution to reducing the climate impact of the oil and gas, and agrifood sectors, without locking in activities and assets that need to be phased down/out as part of the system-wide transition. The section examines how this guidance can be used for various financial instruments.

2. Transition finance and system boundaries

There is a path to sufficient global momentum that makes the transition to well below 2°C possible, which requires collective engagement and early action. While some entities cannot commit to ambitious pathways or to reducing scope 3 on their own, networks of entities working collectively towards the same objectives can. The achievement of a minimum level of collective action increases the ambition level of each entity. The abatement of methane emissions is the first essential step on that path and the following section of this report describes expert-led guidance and financial instruments that can be used to support these measures. These were designed to ensure that financing substantially contributes to climate change mitigation and does not lead to carbon lock-in. These tools were conceived with the goal of shifting a specific system; whether an asset, an activity, an entity, a value chain, a sovereign or a whole region in order to reduce the difficulty in identifying credible and impactful investment strategies for the most methane intensive corporates.

2.1. Global and international guidance

Two sets of globally applicable guidance were published in 2024 and 2025 which inform credible methane reduction strategies and identify appropriate UOP categories for inclusion in transition finance instruments: MFWG guidance on structuring debt financing and other financial levers for methane abatement in the upstream segment of the oil and gas sector.

The international taskforce came together in 2024 and 2025 to assess the viability of using the debt capital markets to adapt current finance structures for the deployment of capital towards emissions reduction strategies across corporate oil and gas operations.[34] It published guidance that included methane abatement in oil and gas debt structuring in June 2025.[35]

The guidance outlines robust technical standards and operating procedures for methane and flaring emissions reductions. The objective was to facilitate the financing of all corporates and in particular of NOCs that are starting to measure their emissions. Recommendations were developed on the basis of best-available climate and atmospheric science, drawing from industry standards and regulatory frameworks, as well as bringing in the real-world experience of practitioners in oil and gas methane emissions abatement. The broader perspectives of think-tanks, non-profit advocacy groups, multilateral development banks, and energy market modellers were essential to designing robust guardrails for assessing greenwashing risks.

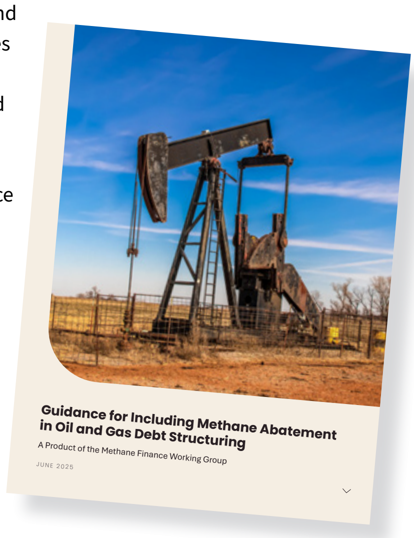
The guidance details the structure of both UOP and sustainability-linked instruments.

For KPI-linked guidance a suite of KPIs that factor in the distinct challenges of quantifying methane emissions from oil and gas operations are put forward.

- Five core KPIs are identified: 1) robustness of the MVR system, 2) absolute methane emissions, 3) methane emissions intensity, 4) a metric capturing the ability of capital providers to address all major emission sources detected through publicly available sources with increasing stringency, and 5) flaring intensity target.
- Secondary or 'activity-based' KPIs are also suggested. These are methane abatement activities which can help operators to drive early reductions even when they only have a limited understanding of their emissions profile.
- Most importantly, the guidance recommends KPIs for non-operated assets.

The guidance also makes recommendations for the pace at which methane abatement targets can be met for each KPI, which is supported by the guidance of voluntary programmes (Oil & Gas Decarbonization Charter, and Oil and Gas Climate Initiative). The guidance is intended to be a market transformation tool with a suite of progressive KPIs and targets.

For UOP instruments, an illustrative list of eligible projects is given together with their ability to ensure completeness and permanence in abating methane emission, and their risk of carbon lock-in. The MFWG guidance allows for the structuring of instruments that ring-fence the proceeds and ensures impact for corporates at various stages of their methane emission reduction strategy. At the start of their strategy, corporates should focus on improving their emission MVR to be able to deploy an abatement strategy, while mature corporates should leverage the guidance to facilitate emission reduction in their joint ventures and for decommissioned sites.



Climate Bonds sectoral guidance on methane abatement for agrifood producers and bioenergy




Climate Bonds released the latest version of the Agriculture Production Criteria in October 2024.[36] The Criteria were developed with the support of technical and industry working groups, comprising stakeholders from academic institutions, non-governmental organisations, financial institutions, and businesses.

The Criteria list production activities that support a transition pathway aligned with 1.5°C, alongside encapsulating eligible measures that support climate adaptation, carbon sequestration, climate change mitigation, N_2O emissions, and methane emissions from livestock and rice production. It is globally applicable.

Eligible measures for UOP include rice production management plans, transforming livestock systems, and R&D in alternatives to livestock systems e.g., meat and dairy alternatives. The Criteria also cover sustainability-linked finance and identify a science-based pathway for livestock producers.

Climate Bonds eligibility criteria mirror many of the mitigation strategies for methane emissions identified by the Food and Agriculture Organisation (FAO). The FAO's report on emissions in the livestock and rice industries complements the Climate Bonds Criteria by offering a more detailed description of methane reduction activities, such as the potential adoption of various measures and their integration with other mitigation strategies which can help entities assess options at a localised level.[37]

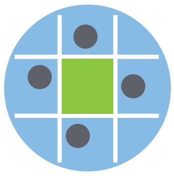
As discussed in Section 1, the transition plans of some of the corporates in the agrifood sector are not yet mature enough to evidence a credible commitment to decarbonisation. Transition finance can nonetheless be deployed by these corporates.

Climate Bonds Food Value Chain Criteria identify various eligible activities for UOP financing for corporates starting their transition. These utilise traceability systems, data collection and monitoring systems, supplier engagement and training and support.[38] They also include support for the diversification of product offerings to shift consumption from high emissions food, particularly animal-based protein. More generally, Climate Bonds Value Chain Criteria list a wide range of eligible projects suitable for inclusion in UOP debt instruments by corporates operating downstream.

Sustainable value chain financing is another route, which if introduced could reinforce methane abatement within the value chain over time. Climate Bonds Crops and Livestock, and Alternative Protein Criteria list various measures to shift production systems towards diversification, both at the farm level and through alternative food offerings.[39]

Climate Bonds will release an update to its Bioenergy Criteria in 2025.[40]

2.2. Regional taxonomies and sectoral roadmaps



Sectoral roadmaps and local taxonomies are effective tools to scale up transition finance through UOP instruments. To ensure credibility, they must reflect a science-based approach in identifying the activities that are compatible with the Paris Agreement goals. Appendix 2 includes Climate Bonds recommendations for principles that should be followed by taxonomies as a guide for eligible activities and measures. In particular, taxonomies should not include activities that could lead to carbon lock-in. Readers can refer to Climate Bonds *The Role of Fossil-Fuels in Taxonomies* report for examples of how such investments were ring-fenced in science-backed national taxonomies.[41] Climate Bonds own sectoral guidance has identified cases where natural gas infrastructure can be considered eligible, but these are context specific and strong safeguards are needed to prevent the lock-in caused by the techno-institutional mechanisms referred to by the Stockholm Environment Institute.[42]

Taxonomies developed by local jurisdictions can adopt a tailored approach towards decarbonisation at a regional level. A taxonomy should ensure it supports enough local sectors to take the initial steps towards climate mitigation. When an investor supports an economic activity aligned with its jurisdictional taxonomy, the investor is in effect contributing to the shift in the local ecosystem. Taxonomies are designed to be dynamic tools that will evolve as the economy is transitioning and with scientific advancement, regulatory updates, technological development, and market needs. The longer-term view and pace of the transition of the region is captured by the taxonomy itself.

Climate Bonds and CPI will release a study of the treatment of methane abatement in taxonomies by the end of 2025. The report highlights that taxonomies have primarily targeted CO_2 emissions so far and there is room for more robust methane abatement measures. Taxonomies should clearly embed abatement measures in economic activities that are aligned with climate objectives, and some already do. In sectors such as energy generation, where methane abatement technologies such as leak detection and repair are relatively mature and economically viable, taxonomies can help accelerate their uptake. The role of taxonomies becomes even more critical in harder-to-abate sectors such as agriculture and waste, where market incentives for methane abatement are weaker, mitigation solutions are more diffuse, and investment risks are often higher. In these contexts, taxonomies can help to mainstream solutions that are not yet used at scale, such as improved livestock feed, anaerobic digestion of manure, or organic waste diversion, by validating their contribution to climate goals and making them eligible for green finance. Climate Bonds Sector Criteria and Taxonomy can complement taxonomies on conditions and safeguards to ensure impact.

The success of the green bond market stems notably from the fact that the UOP structure together with the existence of climate solutions taxonomies could result in positive impact, irrespective of the entity's decarbonisation commitment. The same success should be expected from investments in activities in transition that are acknowledged by taxonomies as contributing substantially to climate change mitigation.

Linking corporate transition plans to regional sectoral roadmaps ensures cohesion

More than 90% of the revenues of Snam, the Italian gas transport and storage provider, come from its regulated business of transporting and storing natural gas. Its current strategy is to support existing needs (natural gas is 30% of Italy's energy mix) and the Italian and EU objectives on energy security and the climate transition.[43] In particular, Snam is working on ensuring that its gas infrastructure could be reused for other gas sources (hydrogen and biomethane).[44] Snam analysed various energy scenarios developed by EU institutions and the European Network of Transmission System Operators for Gas and Electricity to set business and GHG emission reduction targets compatible with a well-below 2°C pathway.

Snam has fully integrated sustainable finance to support most of its current and future strategy. The share of sustainable financing was 84% of its total funding in 2024 and is targeted to rise further. Its green framework supports investments in climate solutions while its sustainability-linked framework is linked to the decarbonisation performance of its regulated gas business. The sustainability-linked framework is supported by the transition plan of the regulated business that has a high level of transparency and alignment with best market practices. In particular, Snam is leading in terms of transparency in methane accounting and abatement (see Appendix 1). As per the greenhouse gas protocol guidance, scope 3 emissions resulting from the combustion of gas transported by Snam is not accounted for in its emissions. Those emissions are in effect due to the consumption of natural gas by the whole of Italy.

If Snam successfully reaches the targets set out in its transition plan, its regulated business could become net-zero under the current accounting methodology while simultaneously having a non-negligible source of revenues from the transportation of natural gas. The size of the latter business will be determined by the evolution of the Italian energy system and part of Europe.

Snam is seeking to play a part as an enabler of the transition via investment in biomethane, hydrogen, and CCS solutions included in the EU decarbonisation roadmap. One important metric capturing the credibility of the commitment is the amount of capex towards green and decarbonisation investment: 65% of the capex for the period 2023/27, which would rise to 80% the following year. By decoupling its sources of financing for its taxonomy-aligned climate solution business and its regulated fossil fuel business, Snam is effectively offering investors the possibility to contribute and accelerate the regional shift away from fossil-fuel while presenting a coherent climate and financing strategy for the decarbonisation of its fossil-fuel based regulated business.

2.3. Sovereigns and municipalities

Over 159 countries now participate in the Global Methane Pledge, with the collective objective of achieving a 30% reduction in methane emissions below 2020 levels by 2030.[45]

There are multiple reasons why investors should support jurisdictional entities including methane abatement measures in labelled UOP deals. Jurisdictions and municipalities are best placed in multiple areas such as:

1. supporting NOCs in abating emissions, which are the backbone of the oil and gas industry but face challenges in accessing capital markets;

2. plugging-in global abandoned facilities, which the IEA estimates to collectively represent the fourth highest source of emissions after China, the USA, and Russia;[46]

3. reducing the impact on health and air quality of local communities;

4. supporting the emission reduction measures of farmers and reconversion; and

5. facilitating the deployment of a local circular economy via the development of bioenergy projects at farm level (see Section 1)

Methane abatement measures can benefit a broad range of local stakeholders, and municipalities and states could act as catalytic sources of funding in co-financing projects, harnessing the local public and private beneficiaries of the activities. MFWG and Climate Bonds guidance can be leveraged to identify appropriate UOP measures for inclusion in labelled bonds priced by these entities with a high level of credibility. Municipalities with independent funding capabilities are already deploying labelled bonds, which could be scaled to meet unmet investor demand.[47]

Cattle herd size reduction is an important lever

The Netherlands launched a EUR25bn plan in 2021 to reduce livestock numbers due to the impact of intensive farming on the environment.[48] In 2024, the EU approved EUR1.5bn in state aid to support farmers in voluntarily closing dairy, pig, and poultry operations, offering up to 100% compensation.[49]

In the UK, the Climate Change Committee has targeted a 27% livestock reduction by 2040, alongside reduced meat consumption.[50] This approach supports land-use change and lower-emission diets while providing incentives for farmers to diversify.

These initiatives show a clear shift towards integrated policies that link livestock reduction with climate, environmental, and land-use goals, backed by financial and structural support for farmers.

2.4. Supply chain

Committing to net-zero implies a global movement of industries with shared goals and explicit commitment. It encourages not only sectoral peers but also market participants within a supply chain to collaborate. Existence of successful collaborations is emerging:

- The agrifood sector has various parallel and vertical collaborations to share the costs of abatement measures. One example of it is scope 3 stacking: a dairy company and partners operating in the same value chain share the cost to implement sustainability measures and share the carbon reduction proportional to their investment. Corporates then claim carbon reduction through green e-certification schemes.[51]

- Financial institutions are scaling the number of transitioning companies via the development of sustainable supply chain and trade financing. They can leverage the supply chain programme of CDP that collects data from suppliers and designs a framework for corporates to engage with their suppliers and reinforce their own transition. This can be used by financial institutions to support the structuring of sustainability-linked loans and ensure continuous progress.[52,53] This supply chain financing could be leveraged for methane abatement financing as well.

- In the oil and gas sector, UNEP is developing a methane supply index which will enable gas buyers, governments, and civil society to compare the methane content of different oil and gas imports. This index will integrate empirical data from International Methane Emissions Observatory (IMEO) scientific studies, satellite data, and OGMP 2.0 reporting to provide transparency and accountability.[54]

Outlook

Financing methane abatement measures in the oil and gas sector, and the agrifood sector is a top priority to limit the global temperature increase to 1.5°C. The analysis of a representative set of major corporates worldwide demonstrates that methane emission is acknowledged as a material source of environmental impact and corporates are deploying strategies to abate emissions; although the level of maturity of the strategy varies greatly.

There is an appetite to scale financing for methane abatement measures and the USD6tn sustainable debt market is well placed to absorb the cost. However, Climate Bonds research has consistently identified a shortage of credible investment opportunities in the sustainable finance space.[55] Furthermore, investors have repeatedly expressed a need to diversify the investable opportunity set.[56]

Climate Bonds identifies three areas where entities should prioritise actions to engender the required integrity and transparency to decarbonise and obtain the required finance. Market practitioners should encourage and support these actions to scale the investible opportunity set:

1. Reinforce and improve the accuracy of methane emission measurement, to strengthen verification systems and deploy a systematic and granular abatement strategy.

2. Act to support methane abatement commitments within operations, joint ventures, and supply chains, even if they are not yet deploying a Paris-aligned and science-based decarbonisation strategy.

3. Reference the latest set of guidance published by Climate Bonds and the MFWG to identify eligible activities and measures for inclusion in credible UOP instruments that ring-fence the finance to avoid lock-in risk, prevent negative externalities on other environmental objectives, and deliver impact. This guidance includes a wide range of measures and activities that can be deployed by corporates at any stage in their strategy to measure and abate their emissions or those of their suppliers or partners; they could also support the structuring of UOP debt priced by other entities such as sovereigns and municipalities. This guidance could complement the current incomplete capture of methane abatement in taxonomies.

Appendices

Appendix 1: Analysis of ten corporate transition plans in the oil and gas, and agrifood sectors

This section presents a summary analysis of ten corporate transition plans in the oil and gas, and agrifood sectors to identify the extent to which methane emission is acknowledged and if emissions reduction is central to the environmental strategy of the corporate. The analysis was completed at the beginning of 2025 based on information provided on the corporate website. The methodology used to assess the treatment of methane in transition plans followed the same structure as the analysis of transition plans; the key pillars of the assessment are 1) emission disclosure and external validation, 2) targets, 3) delivery strategy including finance plan and industry/supply chain engagement, and 4) performance.

Agrifood sector

Case studies of methane abatement strategies in the dairy subsector

Four corporates have been chosen to represent the dairy sector:

Dairy Farmers of America (DFA): A farmer-owned dairy cooperative based in the United States, manufacturing milk, ice cream, butter, cream, and yogurt. It is owned by and services 13,000 farmers across the US, represented by elected farmer leaders.

Danone: A world leading food and beverage company in over 120 countries operating across four main business areas: dairy and plant-based, early life nutrition, medical nutrition, and bottled water.

Nestle: The largest, most diverse food and beverage company, headquartered in Switzerland. Its product portfolio includes baby food, cereals, coffee, dairy products, and medical nutrition. Well-known brands include Nescafe, KitKat, and Maggi.

Arla: A Danish-Swedish cooperative. The first large dairy company in the world and largest provider of dairy products in the UK and Scandinavia.

Targets: Danone leads, others follow

- Danone is the only company among the four dairy companies to have announced a methane-specific target: a 30% reduction in methane emissions from its fresh milk supply chain by 2030, relative to a 2020 baseline.[57] This target is aligned with the Global Methane Pledge and sits within the company's science-based total emissions reduction pathway, validated under the SBTi-FLAG framework.

- Nestle aggregates its methane reduction effort within its global targets to reach net-zero GHG emissions by 2050 in line with a SBTI validated 1.5°C-aligned pathway, and it has a dairy climate plan as part of its reduction strategy.[58]

- Arla Foods and DFA both have SBTi validated emission reduction targets but have not disclosed formal methane reduction targets and a methane reduction strategy; although they are building commitments and partnerships for methane abatement.[59,60]

Methane abatement strategy is driving collaborations

- Danone demonstrates a comprehensive approach to methane abatement as communicated through its Methane Matters report.[61] Starting with country-by-country assessments to track its GHG emissions, Danone is piloting innovative technologies by taking advantage of its partnerships with governments, businesses and NGOs, catalysing industry change through policy advocacy and improvements in data and reporting of methane emissions in agriculture. The company employs a multi-pronged strategy that includes optimisation of animal feed, herd management, manure management, and the deployment of enteric methane inhibitors.

- Nestlé collaborates with regenerative farming networks and biogas cooperatives, and it is involved in emerging feed additive trials; although its engagement is generally more supply-chain driven.[62]

- Danone and Nestle are examples of mature corporates that are leveraging collaboration to scale proven and maturing technologies.

- DFA is a cooperative of farmers. Its strategy is therefore to scale methane abatement measures directly to its farmers, which allows its farmer owners to share cost, experience, and training.[63]

- Arla Foods illustrates what the transition phase looks like at an earlier stage. Arla Foods has piloted Bovaer, a 3-NOP-based methane inhibitor, across approximately 30 farms in the UK.[64] It is still in early stages, and full integration across its cooperative supply chain is yet to occur.[65]

Monitoring, reporting, and verification

- Danone leads significantly in the quality and transparency of its MRV systems. It publishes an annual Dairy Methane Action Plan (DMAP), disaggregates methane from its broader greenhouse gas reporting, and collaborates with the Environmental Defence Fund (EDF) to build robust, science-based MRV frameworks.[66]

- Nestlé provides overall methane reduction figures and scope 3 data from dairy ingredient sourcing but lacks intervention-level or geographically disaggregated performance data.

- Arla Foods and DFA do not publish methane-specific performance data, yet there is evidence of work in progress from Arla with the use of a farm data collection tool.[67]

Financial investments to support methane reduction

- Danone and Nestlé have both made notable direct investments in farm-level mitigation through sourcing programmes, manure management infrastructure, and R&D for methane-reducing feed additives.

- Danone's collaboration with EDF also includes work on methane finance frameworks.

- Nestle is sharing the costs of methane reducing technologies such as manure separators with farmers and farm equipment suppliers, minimising the cost for farmers and ensuring the farmers benefit financially from the revenue stream created by separated manure.[68]

Performance

- Nestle and Danone are the only two corporates showing progress in their methane abatement strategies.

Case studies of methane abatement strategies in the meat subsector

Four corporates have been chosen to represent the meat sector:

JBS: Founded in Brazil, JBS is a global leader in beef, poultry, and pork production. The company operates in over 20 countries and owns well-known brands including, Pilgrim's Pride, Swift, and Primo. JBS serves markets worldwide with fresh and processed meat products.

Marfrig: Founded in 2000, Marfrig is one of the world's leading beef producers. It operates across the Americas with brands such as Bassi and National Beef. Marfrig is primarily engaged in the processing and distribution of meat.

Tyson Foods: Tyson Foods is an American multinational food company that processes chicken, beef, and pork. It owns brands such as Tyson, Jimmy Dean, and Hillshire Farm. It serves customers in over 100 countries and works with 11,000 independent livestock and poultry farmers.

WH Group: WH Group is one of the world's largest livestock companies. It focuses on pork production, processing, and distribution, with a strong presence in China, the USA, and Europe.

Targets: A challenging transition ahead for meat producers

The climate transition strategies of the four major meat producers differ substantially in ambition and maturity.

- JBS stands out as having the most aggressive timeline, having pledged to achieve net-zero GHG emissions by 2040. JBS is setting 2030 emission reduction (scope 1 and 2) outside of SBTi verification due to its inability to align with SBTi's new goal-setting processes for agrifood companies.[69] This illustrates the difficulty in setting short- to medium-term targets including scope 3 emission reduction without relying on offsets.[70]

- Marfrig has not committed to a net-zero target but validates its emissions targets through SBTi.[71]

- Tyson Foods and WH Group have both made public commitments to reaching net-zero emissions by 2050. Tyson Foods also sets an interim target to reduce 30% of its absolute emissions by 2030, whereas WH Group has set a target to reduce GHG emissions per unit of product by 30% by 2030.[72]

A strong disparity in the level of advancement of methane abatement strategies:

Traceability, engagement, and identification of an effective abatement strategy at farm level are challenging steps:

- JBS focuses on working with universities, suppliers, and farmers through various collaborative initiatives worldwide and it is clear from its reporting that it is actively working on multiple fronts. Levers include feed additives, biogas infrastructure, and participation in industry R&D initiatives. There is not yet a holistic vision of how these will lead to short-term environmental objectives.

- Marfrig's climate efforts reflect a pragmatic approach, describing and tracking through KPIs the current status of its actions and targets in response to the identification of its environmental material impact. Marfrig's strategy to reduce methane is still to be developed. Mafrig mentions piloting the Silvafeed additive in Brazilian feedlots.

- Tyson food is showing progress by announcing a supply chain management system to ensure responsible sourcing by 2027. Tyson Foods created its climate-smart beef programme which focuses on general GHG reduction through grazing and feed changes but lacks evidence of enteric methane interventions or infrastructure investment.

- Finally, WH Group has a less advanced strategy in advancing a sustainable procurement and supply chain management system compared to its peers. The company has only recently begun reporting scope 3 emissions and lacks a comprehensive decarbonisation pathway to signify progress towards its interim goals. WH Group has not yet disclosed a methane abatement programme.

Monitoring, reporting and verification

- None of the corporates disclose their methane emissions.

- JBS integrates traceable MRV systems into its methane initiatives, with partners DSM and GreenGasUSA supporting verified emissions tracking.[73]

- Marfrig has yet to disclose any methane reductions from its ongoing projects but intends to do so as one of its KPIs for reducing its direct and indirect emissions is to record a percentage reduction in methane emissions. In 2022, Marfrig developed an innovative tool in collaboration with a specialised climate footprint estimation company, Climit, which should support the company's future initiatives in measuring and mitigating GHG emissions generated by livestock.

- Tyson relies on internal models for its Brazen Beef emissions claims, which are neither independently verified nor transparent.

- WH Group is working on measuring scope 3 emissions and does not mention the integration of a MVR system to monitor methane emissions.

Financial investments to support methane reduction

- JBS supports its net-zero goals by allocating a substantial investment commitment of over USD1bn, of which USD100m is dedicated specifically to R&D for emissions reduction technologies. It has a vast array of investments that support the reduction of GHG emissions across its supply chain.

- Marfrig has made smaller but strategic investments in methane reduction pilots such as Silvafeed.

- Tyson Foods invests in sustainable protein start up but does not link any of its other investments to methane reducing activities.

- WH Group has not reported any financial investments in methane reduction.

Performance

No corporate is disclosing methane emissions reduction.

Case studies of methane abatement strategies in the rice subsector

Two corporates were chosen for the rice sector:

Anheuser-Busch Inbev SA: With over 200 breweries around the world, AB InBev is a Belgium-based company, which is primarily engaged in the manufacturing of beer. Its brand portfolio includes global brands, such as Budweiser in which rice is a primary ingredient.

Olam Group: A Singapore-based agribusiness company engaged in sourcing, processing, packaging, and merchandising of ingredients, feed, and fibre.

Targets: Distinct paths in methane reduction linked to rice production

Olam Group and AB InBev have both set long-term climate targets, but their transition strategies diverge in scope and delivery.

- Olam's core business is to supply food ingredients and it has committed to net-zero by 2050, underpinned by SBTi-approved targets together with a transition strategy focused on agricultural decarbonisation.

- AB InBev is operating in a downstream segment as a beverage company. It is aiming for net-zero by 2040, with a nearer-term goal to reduce emissions by 25% from 2018 levels by 2025. Its strategy is currently centred on renewable energy, energy efficiency in operations, and digital tools for sustainable farming.

Methane abatement strategies and position in the value chain

- Olam applies methane reduction primarily in rice cultivation. Through partnerships with the Sustainable Rice Platform and governments (e.g., Thailand, Vietnam), it promotes climate-smart practices such as alternate wetting and drying (AWD), straw removal, nutrient management, and feed additives. The group has also begun projects that upskill farmers and empower women whilst offsetting rice emissions in India.

- AB InBev does not have a specific strategy for methane, which might be explained by methane emissions not being as material as other sources of emission. The company states that its most material scope 3 emissions are from sources other than agrifood procurement (e.g., packaging and cooling). Methane emissions impact its scope 3 through the procurement of rice and are emitted by its factory wastewater. The corporate has installed anaerobic digesters at several breweries and started smart agriculture pilot projects, which could indicate that it is nonetheless active in methane abatement. In line with the draft of SBTI's corporate net-zero standard 2, it is essential that in the downstream segment, corporates prioritise scope 3 emission reduction on the most emission-intensive activities within their value chain.[74]

Monitoring, reporting, and verification

- Olam reports having implemented an MVR system with a verification process to substantiate carbon reduction projects in cocoa, coffee, and dairy. The corporate has yet to communicate its methane emissions and the findings of its methane reducing activities.

- In contrast, AB InBev provides no indication that it monitors its methane emissions.

Financial investments

- The corporates do not explicitly mention a finance plan for methane emission reduction.

Performance

- No corporate is disclosing methane emission reduction.

Oil and gas sector

The ten corporates analysed are:

Major multinationals

- **ExxonMobil**: An integrated company intervening in the upstream and downstream, chemicals, and low-carbon solutions business; headquartered in the USA.[75]

- **Eni**: An Italian energy company engaged in the exploration, development, and extraction of natural gas and oil, power generation from traditional and renewable sources, refining, and chemicals.[76]

- **Inpex**: A Japanese corporate working in the research, exploration, development, production, and sale of oil, natural gas, and other mineral resources.[77]

Mid-sized players:

- **Devon**: An oil and natural gas exploration and production company headquartered and operating in the USA.[78]

- **Galp**: A Portuguese energy corporate engaged in oil and natural gas upstream business, refining, and renewable energy.[79]

National oil companies (NOCs):

- **Petrobas**: An Oil, natural gas, and energy company controlled by the Federal Government of Brazil.[80]

- **Kazmunaigas**: A national operator in the Kazakhstan oil and gas industry (contribution makes up 9% of the state budget of the Republic of Kazakhstan).[81]

- **Romgas**: Romania's largest gas producer, 70% owned by the Romanian State.[82]

Natural gas transport and storage company:

- **Snam**: An Italian-regulated energy company operating in natural gas transportation, storage and regasification, and developing climate solutions (biomethane, hydrogen, and CCS).[83]

Engineering solutions provider for oil and gas:

- **Baker Hughes**: Headquartered in the USA.[84]

IIGCC has provided detailed guidance on how to assess corporate progress in abating methane emissions.[85] In this report, the analysis of the treatment of methane in all corporate transition plans follows this methodology, except Baker Hughes, the oil field service corporate, for which an entity-level assessment is summarised. IIGCC questions have been grouped in the five key pillars 1) emissions disclosure and external validation, 2) targets, 3) delivery strategy, 4) industry engagement, and 5) performance. The outcome of the analysis for each category is given.

The credibility of a methane abatement strategy relies on the appropriateness of the measurement and monitoring of methane. Methane emission quantification efforts require multi-scale data and a robust reconciliation process. The OGMP2.0 framework is the most comprehensive reporting standard to date that ensures transparent and accurate reporting of methane emissions. There are two main ratings used by the standard: the gold standard pathway capturing the robustness of an implementation plan to measure emissions for all in-scope assets with the highest level of accuracy (level 4/5), and the gold standard reporting, for which reporting must exist for all material assets at Level 4 and Level 5 within three years for operating assets and five years for non-operating assets. It is only at level 5 that independent site-level measurements are carried out to validate each asset's emissions.[86]

For an in-depth analysis of transition plans at the entity level, the reader can refer to the methodologies and publications of ACT initiative, Climate Action 100+, and Carbon Tracker.[87]

Targets: Most have committed to methane emissions reduction and zero routine flaring

- All corporates except Galp have set a target to reduce methane in the next 5 or 6 years.

- Targets are either set in absolute term or in intensity metrics, never on both.

- Intensity metrics are not expressed using the same standards.

- There is a strong disparity as to the level of the targets.

- The most advanced corporates (Eni and ExxonMobil) target reaching near zero by 2030.

- Apart from Snam, corporates do not compare their targets with the IEA net-zero emissions recommendation.

Measurement, validation and reporting

- All the corporates selected have joined OGMP 2.0, except possibly Galp whose disclosure is unclear, but only Snam, Eni, and Devon have reached gold standard reporting.

- Other corporates do not disclose the level of accuracy of the emissions measurement for each of their assets on their website, as per OGMP scaling. As a consequence, any financing targeting these corporates should first ensure the corporate deploys the necessary MVR system to reach a high level of reliability in its methane emissions detection, measurement, and validation.

- Mature corporates describe using multiple, complementary monitoring systems for several years.

- Disclosure is still only at an aggregated level and there is no mention of monitoring unused or decommissioned assets.

Methane abatement strategies and engagement

- Inpex, Snam, Devon, Eni, and ExxonMobil mention having developed a methane emission reduction strategy for several years.
- Disclosure is always limited and does not allow the assessment of the fullness of the strategy. To facilitate that assessment, a disclosure of a list of actions per asset would be required. This level of detail would probably only be accessed through direct engagement with the companies. Achieving OGMP2.0 gold standard reporting should give assurance that the strategy is in place for all material assets.
- The other corporates are starting the implementation of the emissions reduction strategy. ExxonMobil is the only corporate mentioning a strategy for non-routine flaring.
- All corporates are engaged in one or several industry initiatives for methane abatement. Apart from Eni, there is no indication that the engagement is facilitating the emission reduction of non-operated assets.

Performance

- All corporates with established strategies show decreasing levels of methane emission except Inpex. This should be reassessed from the moment the corporate has established and maintained a robust MVR system.

Enablers and avoided emissions/scope 4

Baker Hughes is an energy technology company that, as of 2024, derived 56% of its revenues from its oilfield business and equipment, and 44% from its industrial and energy technology segment. This second source of revenue includes climate solutions and emission reduction technology (carbon capture utilisation and storage (CCUS), hydrogen, GHG emission abatement etc.,) which accounts for 5% of the revenues currently but has experienced strong growth since 2021, supported by the increased interest in geothermal and methane abatement technologies.[88] The corporate transition plan is maturing, with the main criteria missing being the target on scope 3; their scope 3 emissions are by far the most material due to the use of product sold, which is increasing in line with the growth in sale of gas power turbines. Baker Hughes is working on a target for scope 3.

Corporates such as Baker Hughes, and also business divisions of oil and gas sectors that deploy climate solutions, have the engineering expertise to decrease the environmental impact of other players and therefore have a fundamental role to play in the transition. There is a lack of standardised metrics and frameworks to capture this enabling role but guidance is emerging.[89] The percentage of revenues, opex, and capex linked to the climate solutions business could be an indicator of the corporate commitment and associated undertakings, yet these metrics are not directly linked to GHG emissions reduction.

In its disclosure, Baker Hughes promoted the need to additionally include a quantification method for avoided and removed emissions as it is not reflected in the GHG Protocol. They have developed a methodology based on comparative life-cycle analysis (LCA) to calculate emissions differences, following the World Business Council for Sustainable Development (WBCSD) guidance on avoided emissions.[90] This metric supports Baker Hughes' ability to track step progress.

Avoided emissions are routinely used to measure the impact of projects listed, for example, in green financing. Avoided emissions metrics, when capturing a carbon emissions reduction from an intervention (e.g., energy efficiency) on fossil-fuel based activity, should always be linked with an analysis of carbon lock-in risk. As discussed in Section 1, impact measures do not necessarily capture the pace and rate of the global transition need.

Appendix 2: Principles underpinning taxonomy development

- The criteria must be **science and evidence-based**, with quantitative thresholds derived from environmental ambition and integrity. These thresholds should consider NDC commitments, scientific data, and scenarios from the IPCC and national emissions inventory.

- Whenever possible, **prioritise quantitative over qualitative indicators** by using quantitative metrics. Substantial contribution for the mitigation objective will be measured through specific metrics and thresholds, developed for each activity. These should be **measurable, comparable, and preferably quantifiable**, to assess the contribution of an economic activity to a given sustainability objective. Metrics serve as the unit of measurement to evaluate the substantial contribution of the economic activity to the main parameter, while thresholds are ranges of quantitative data that determine the degree of sustainability.

- To ensure a holistic assessment of eligible activities, the **life-cycle impacts** of the activity should be considered to the greatest extent possible, in accordance with the cost-effectiveness verification principle.

- The criteria must ensure **fair treatment of activities within the same sector**. The criteria outlined below are robust and consistent. The definition of criteria and thresholds should follow a consistent methodology to ensure that requirements are equitable across different sectors and activities, establishing a level playing field.

- The technical criteria must be **comprehensible, simple to evaluate, review, verify, and implement**. They should be developed with consideration for the **technological feasibility and applicability** in the short-term, accounting for the diverse characteristics of potential users of the taxonomy, such as small and medium-sized companies focused on the domestic market versus large companies active in international markets.

- Technical criteria must pursue **taxonomy interoperability**, aligning with the overall development of the taxonomy; ensuring coherence with international goals, agreements, and standards, as well as with relevant national policies and regulations.

The reader can also refer to G20 principles for sustainable finance alignment.[91]

Appendix 3: Examples of labelled bonds linked to methane abatement

In the agrifood sector, several green bonds include methane abatement activities:

Issuer	Issuer type	Instrument type	Issued amount (USDbn)	Indicator	Issue date
Intesa Sanpaolo SpA	**Financial corporate**	Green bond	1.10	ISIN Reg: XS2804485915	2024
IFC	**Development bank**	Green bond	0.70	ISIN: CA45950KDE79	2023
PSP Capital	**Government-backed entity**	Green bond	0.70	CUSIP: C75089AC3	2023
Government of Fiji	**Sovereign**	Green bond	0.02	ISIN: FJ1305037434	2023
CIMB Group Holdings	**Financial corporate**	Green bond	0.10	ISIN: MYBPN2300050	2023

In the oil and gas sector, sustainability-linked bonds include a KPI on either GHGeq (Methane is a major part of scope 1 of upstream corporates) or methane emission.

Issuer	Issuer type	Instrument type	Issued amount (USDbn)	Indicator	Issue date
Compass Gas e Energia	**Non-financial corporate**	Performance-linked bond	0.35	ISIN: BRPASSDBS017	2023
Enbridge Inc	**Non-financial corporate**	Performance-linked bond	2.60	ISIN: US29250NBR52	2023
Eni SpA	**Non-financial corporate**	Performance-linked bond	4.00	ISIN: XS2637952610	2023
Osaka Gas Co Ltd	**Non-financial corporate**	Performance-linked bond	0.16	ISIN: JP318040BQ54	2024
Hera SpA	**Non-financial corporate**	Performance-linked bond	0.65	ISIN: XS2613472963	2023
Kinetik Holdings LP	**Non-financial corporate**	Performance-linked bond	0.80	ISIN: USU49467AC44	2023

Endnotes

1. Climate Bonds | Sector Criteria
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