Controlling fugitive methane emissions in the oil and gas sector

Investor Group on Climate Change

IIGCC
Institutional Investors Group on Climate Change

Investor Network on CLIMATE RISK
a project of Ceres

Controlling fugitive methane emissions in the oil and gas sector

Joint statement by the Institutional Investors Group on Climate Change (IIGCC), the Investor Network on Climate Risk (INCR) and the Investors Group on Climate Change (IGCC).

Executive summary

IIGCC, INCR and IGCC represent nearly 200 institutional investors with $20tn of assets that share a common concern about climate change.

Climate change presents major long-term risks to the global economy and to the assets in which we invest. Fugitive methane emissions from the oil and gas sector are significant and growing rapidly.[1] The high global warming impact of methane raises significant climate change concerns, and consequent regulatory and reputation risks for the oil and gas sector.

Leading companies have demonstrated that the majority of fugitive methane emissions can be avoided at low cost via implementation of best practice technologies. Effective steps to minimize methane emissions by the oil and gas sector will significantly help reduce the sector's overall greenhouse gas emissions, and increase public confidence in the environmental integrity of the industry's activities. As shareholders in the oil and gas sector, we therefore support and encourage action by companies to implement effective fugitive methane emissions controls.

We are calling on governments in oil and gas producing nations to consider whether they have effective regulations in place to minimize fugitive methane emissions. We are calling on intensive gas users and governments in oil and gas importing regions to consider whether they can play a role in encouraging control of fugitive methane emissions.

Background

IIGCC, INCR and IGCC represent 200 institutional investors with $20 trillion in assets, that share a common concern about the potential for climate change to have major negative impacts on the global economy and the long-term financial performance of our investments.

Methane is the second most abundant greenhouse gas emitted by human activities after carbon dioxide and has a much greater short-term global warming potential.[2] This means that increasing methane emissions has a significant impact on rising temperatures, particularly over the short-term, while reducing methane emissions brings large short-term benefits in slowing down the rate of climate change.[3]

We are concerned about methane emissions across the economy as a whole, but particularly in the oil and gas sector.[4] Methane is the primary component of natural gas and is emitted across the natural gas value chain, including during production, processing, transmission, storage, and distribution.[5] Methane is also emitted during oil production, which results in the production of associated natural gas.

The exploitation of large unconventional oil and gas reserves – shale gas, tight oil and gas, and coal bed methane – is driving rapid growth in oil and gas production and associated methane emissions around the world.[6] The oil and gas sector is one of the largest sources of global methane emissions, and is expected to be one of the most rapidly growing sources of anthropogenic methane emissions in the coming decades.[7]

The industry has argued that natural gas will be beneficial in tackling climate change by enabling a move from coal to natural gas in electric power generation. Burning natural gas, as opposed to coal, can result in 40-50% lower power plant carbon dioxide emissions; but recent research indicates that increased global warming from high fugitive methane emissions generated along the natural gas value chain may negate some of this benefit, particularly for the first few decades after coal-gas switching.[8] This carries risks for the climate, but also for the industry itself as it threatens to increase public opposition to oil and gas development.

Fugitive methane emissions can be substantially avoided. Leading oil and gas companies have demonstrated that most methane emissions can be effectively prevented using current technologies at low cost.[9] The natural gas captured through control processes can be sold in the market, generating positive returns on investment even in a low gas-price environment. Many methane leakage control techniques have payback periods of less than three years.[10] Methane leakage control projects have a number of other benefits including safety improvements, maximizing available energy resources, reducing economic waste, protecting human health, and reducing local environmental impacts. Upgrading production assets with modern and efficient equipment may also improve operational and economic performance, making assets more robust and less susceptible to upsets and downtime.[11]

Action by institutional investors

Effective steps to minimize fugitive methane emissions by the oil and gas sector will significantly help reduce the sector's greenhouse gas emissions, and increase public confidence in the environmental integrity of the industry's activities. As shareholders in the oil and gas sector, we therefore support and encourage action by the companies to implement effective fugitive methane emissions controls.

We are asking the oil and gas companies in which we invest about their polices, practices and performance on methane emissions control, and about the challenges they face in implementing them.

Our action on methane in the oil and gas sector accords with the *Institutional investors' expectations of corporate climate risk management* we published last year.[12] It is also aligned with the priorities of the intergovernmental Climate and Clean Air Coalition, which has identified oil and gas industry methane control as a focal issue.[13] Our work on fugitive methane is also intended to support and be complementary to the International Energy Agency's *Golden Rules for a Golden Age of Gas*[14] and the Investor Environmental Health Network disclosure guidelines for risk disclosure.[15] These initiatives cover a wider range of environmental aspects of unconventional gas production.

Call to companies

Best practice methane emissions control. As major shareholders we ask companies in the oil and gas sector to review their operational policies and practices to ensure they include requirements to implement best practice methane monitoring and control technology for new wells and gas infrastructure, and to evaluate the potential for retrofitting existing assets with appropriate leakage and venting avoidance technologies.[16]

Disclosure. There is currently little disclosure by companies about their policy, practices and performance on controlling fugitive methane. To enable better understanding of current practices, we ask companies to disclose their methane emissions and control policies and practices in their corporate reporting. Investors are consulting with the industry about what additional information it would be most useful for companies to disclose (see p5 below).

Intensive natural gas users. Companies that are heavy users of natural gas have a significant stake in the long-term sustainability of the natural oil and gas production sector. As shareholders in these companies as well, we also ask them to investigate the quality of upstream fugitive methane emissions control in their supply chain, and to demand high standards.

Call to governments

Effective regulation of fugitive methane emissions. We ask governments of oil and gas producing nations to review their policies to ensure their regulations are effective in minimizing methane emissions across the oil and gas value chains.

This can be achieved through inclusion of methane in carbon tax or trading schemes, or through mandatory requirements to implement appropriate methane emissions control technologies across the oil and gas value chain, including green completions, plunger lifts, low-bleed pneumatics, vapor recovery units and flash tank separators.

Intensive natural gas users. We ask governments in gas consuming countries and regions to investigate the quality of methane emissions control demonstrated in the regions where their gas is supplied, and to consider whether they can discourage the sourcing of natural gas from suppliers who fail to control emissions.

Clean Air and Climate Initiative. We ask governments to consider supporting the new global Climate and Clean Air Coalition to Reduce Short Lived Climate Pollutants and the Global Methane Initiative.[17]

Oil and gas sector methane leakage and venting avoidance – best practice disclosure framework

There is currently relatively little disclosure of company policy and performance on the control of fugitive methane emissions in the oil and gas sector. It is therefore difficult for investors to assess the quality of companies' approach to this issue. In order to address this further disclosure may be helpful.

Based on information provided by Natural Gas STAR and other experts, investors have prepared a draft disclosure framework for consultation with the industry (available for download[18]).This provides an indication of the kind of disclosures that would be useful to enable investors to assess whether oil and gas companies are implementing best practice methane emission controls. These disclosures are aligned with best practices identified by the US EPA Natural Gas STAR program.[19] It is possible that assessment of some forms of unconventional gas production may require alternative indicators of good practice.

Investors will be consulting with companies during the summer of 2012 to determine what constitutes best practice in the various relevant contexts, whether the proposed disclosures are the most effective way to enable how investors can best evaluate company policy and performance on this issue, and to identify the improvements that should be made to this draft framework. This consultation is aligned with the work being undertaken by the Technical Working Group for the Carbon Disclosure Project Oil and Gas Sector reporting module, and may be incorporated into that module.

It is intended that the final version of the framework will be used as the basis for investor analysis on the industry's progress toward methane emissions control.

Oil and gas companies and other experts are invited to make comments and recommendations. Please send comments to **MLaManna@theclimategroup.org** by 31 August, 2012.

Endnotes

[1] Global Methane Initiative, see **http://www.globalmethane.org/documents/analysis_fs_en.pdf** for a summary. More detailed data on historical emissions is available from European Commission, Joint Research Centre (JRC)/ Netherlands Environmental Assessment Agency (PBL). Emission Database for Global Atmospheric Research (EDGAR), release version 4.2. **http://edgar.jrc.ec.europa.eu**, 2011.

[2] The Intergovernmental Panel on Climate Change calculates that methane's global warming potential is 24 and 72 times that of CO_2 over a 100 and 20 year timeframe, respectively. Intergovernmental Panel on Climate Change. 4th Assessment Report **http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#.T9CflZjSdaw**

[3] In addition to methane's direct influence on climate, it also has a number of indirect effects including its role as an important precursor to the formation of tropospheric ozone. For some methane sources, emission control measures also reduce other co-emitted substances such as the more reactive volatile organic compounds that contribute to the local formation of ozone, as well as air toxics, such as benzene, carbon tetrachloride and chloroform. Thus, some methane mitigation measures provide local air-quality benefits. Controlling methane emissions and the associated ozone concentrations would also lead to substantial avoided crop yield losses (about 25 million tones of four staple crops) benefitting national development and food security – see UNEP/WMO Integrated Assessment of Black Carbon and Tropospheric Ozone – **http://www.unep.org/dewa/Portals/67/pdf/Black_Carbon.pdf**

[4] Our particular interest in methane from the oil and gas sector stems from three factors: the large exposure many of our investor members have to this sector; the scale of methane emissions from this sector; and the fact that unlike other sources of methane (e.g. enteric fermentation in livestock) methane emissions from oil and gas can be relatively easily abated.

[5] Global Methane Initiative – **http://www.globalmethane.org/documents/oil-gas_fs_eng.pdf**

[6] International Energy Agency (2011) Are we entering a golden age of gas? **www.iea.org/weo/docs/weo2011/WEO2011_GoldenAgeofGasReport.pdf**

[7] Global Methane Initiative, see **http://www.globalmethane.org/documents/analysis_fs_en.pdf** for a summary. More detailed data on historical emissions is available from European Commission, Joint Research Centre (JRC)/ Netherlands Environmental Assessment Agency (PBL). Emission Database for Global Atmospheric Research (EDGAR), release version 4.2. **http://edgar.jrc.ec.europa.eu**, 2011 and US.

[8] See for example, Hultman, N., D. Rebois, M. Scholten, and C. Ramig. 'The Greenhouse Impact of Unconventional Gas for Electricity Generation'. Environmental Research Letters 6 (2011): 044008; Alvarez, Ramón A, Stephen W Pacala, James J Winebrake, William L Chameides, and Steven P Hamburg. 'Greater Focus Needed on Methane Leakage from Natural Gas Infrastructure'. Proceedings of the National Academy of Sciences (April 9, 2012); Wigley, T.M.L. 2011. Coal to gas: the influence of methane leakage. Climatic Change 108: 601–608. It is important to note that even these studies suggest that gas has a significant benefit over coal on a 100 year time horizon. The negative impact of methane on lifecycle assessments is particularly significant over a 20 year time frame. Recent data published (in June 2012) by the American Petroleum Industry and the American Natural Gas Association suggests that fugitive methane emissions levels may be at the lower end of estimates used in the studies above - **http://www.api.org/news-and-media/news/newsitems/2012/jun-2012/api-anga-study-methane-emissions-are-half-epa-estimate.aspx**

[9] Discussions between IIGCC investors and several leading companies; Natural Gas STAR Recommended Technologies and Practices – **http://www.epa.gov/gasstar/tools/recommended.html**; US EPA report **http://www.epa.gov/climatechange/economics/downloads/GlobalMitigationFullReport.pdf**

[10] US EPA Recommended technologies and practices **http://www.epa.gov/gasstar/tools/recommended.html**

[11] Havey, Susan (2012) Leaking Profits, NRDC – **www.nrdc.org/energy/files/Leaking-Profits-Report.pdf**

[12] **http://www.iigcc.org/__data/assets/pdf_file/0013/15331/Institutional-investors-expectations-of-corporate-climate-risk-management.pdf**

[13] **www.unep.org/ccac**

[14] **http://www.worldenergyoutlook.org/goldenrules/#d.en.27023**

[15] **http://iehn.org/publications.reports.frackguidance.php**

[16] The US Environmental Protection Agency Natural Gas STAR Program provides useful resources on best practice fugitive methane control. **www.epa.gov/gasstar/tools/recommended.html**

[17] **www.unep.org/ccac/** and **www.globalmethane.org**

[18] **http://www.iigcc.org/publications/corporate-frameworks/**

[19] **http://www.epa.gov/gasstar/**

About

About IGCC

The IGCC represents institutional investors, with total funds under management of approximately $700 billion, and others in the investment community interested in the impact of climate change on investments. The IGCC aims to encourage government policies and investment practices that address the risks and opportunities of climate change, for the ultimate benefit of superannuants and unit holders.

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About IIGCC

The Institutional Investors Group on Climate Change (IIGCC) is a forum for collaboration on climate change for investors. IIGCC brings together European investors to engage with policymakers, companies and investors on addressing long-term risks and opportunities associated with climate change. The group currently has over 70 members, including many of the largest pension funds and asset managers in Europe, representing assets of around $10 trillion.

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About INCR

The Investor Network on Climate Risk (INCR) is a North American network of institutional investors focused on addressing the financial risks and investment opportunities posed by climate change. INCR currently has 100 members with more than $10 trillion in assets. INCR is a project of Ceres, a coalition of investors and environmental groups working to integrate sustainability into the capital markets.

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