

## Managing Climate Change – Why Not Gas?



Climate change - no matter how you spin it, the stark image of melting ice sheets tells you that it's real. And the oil and gas (O&G) industry often finds itself stuck between the need to fulfill voracious energy demand and not destroying the environment in the process.

Despite its faults, can the O&G sector provide a remedy to reduce the amount of greenhouse gases (GHG) spewed into the atmosphere? Though renewables are hailed as the panacea for all that ails the environment, there is a ready solution with a largely untapped potential of reducing GHG emissions. This solution is natural gas.

Granted, it is still a fossil fuel - however, it is low carbon. When natural gas burns, it produces 50 per cent less carbon dioxide (CO<sub>2</sub>) than coal and 30 per cent less than oil.

Though an obvious choice, there is considerable resistance especially from parties peddling other options for fuel. The number one argument against natural gas is that it consists purely of methane – a GHG 21 times more potent than CO<sub>2</sub>.

However, methane is a fuel that burns completely, emitting significantly less CO<sub>2</sub> - the primary GHG as well as Sulfur Dioxide and Nitrogen Oxide– the precursor of acid rain. Additionally, natural gas produces no smog-creating ash and particulate matter, which affect health and visibility.

The global methane emission is roughly split between anthropogenic and natural sources. Anthropogenic methane sources include agriculture, energy production, landfills and waste water. According to the US Environmental Protection Agency, agriculture accounts for more than 50 per cent of total anthropogenic emission followed by O&G supply chain, which accounts for around 20 per cent of emission - mostly, fugitive emission from leaks along the value chain.

Natural emissions of methane are attributable to amongst others, wetland, natural seeps, animals and vegetation decay.

Over the years, there has been tremendous effort by oil majors to cut methane emissions. In the case of PETRONAS, as part of its Carbon Commitment, the Group has imposed a mandatory requirement of no continuous venting and flaring of methane in the design of new facilities.

For inherited or legacy assets designed more than 20 years ago, methane is monetised in facilities with gas evacuation infrastructure. As for fugitive emissions, PETRONAS has put in place a Leak Detection and Repair Programme.

There has been increased investments in research aimed at improving the industry's ability to detect methane leaks, improve emissions reporting and enhance efforts to reduce emissions. Late last year, the Canadian government announced an investment of C\$5.3 million for seven projects aimed at tackling methane emissions in the oil and gas sector.

PETRONAS has pumped RM275 million into carbon reduction measures since 2013, which has contributed to an 8 million-tonne reduction of CO<sub>2</sub> equivalent emission.

The push to reduce GHG emission is not only motivated by the need to meet multiple environmental goals, but also to curb revenue loss. According to a 2015 article by Forbes, global oil and gas industries allow as much as 3.6 trillion cubic feet of natural gas to escape, representing at least USD30 billion in revenue loss.

Resistance on the basis of methane leak should not stop us from unlocking the immense potential of natural gas. Apart from electricity, it can be used as a fuel for any mode of transportation. Natural gas vehicles (NGVs) are not zero-emission but their environmental, economic and availability advantages make them a realistic alternative to vehicles running on fossil fuels.

The reduction of pollution would be a much welcome change for cities shrouded in thick smog. The city of Lanzhou in China, once described as *a city you can't see from satellite due to dense smog*, managed to improve its air quality after switching from coal to gas.

**At present, natural gas is the most viable solution to reduce our carbon footprint and improve air quality. Whilst renewables are in the spotlight, its viability calls for time, large investments as well as political and social will. Furthermore, the intermittency of renewables in generating energy when the wind blows and the sun shines requires a reliable and compatible partner, like natural gas.**

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