

Monitoring Methane Emissions in support of Climate Change

As a small island developing state (SIDS), climate change is a looming threat to Trinidad and Tobago. We are subject to several converging factors that make us particularly vulnerable to the potentially devastating impacts of rising global temperatures. Rising sea levels, increased hurricane frequency and intensity, and changes in rainfall patterns are just a few of the escalating hazards to which our twin-island state is exposed.

As a country, we have not stood idly by and surrendered to the challenges presented by climate change. Trinidad and Tobago, as a signatory to the 2015 Paris Climate Agreement, has committed the nation to reducing emissions in the power generation, industrial and transport sectors by 15% by 2030 and to achieve 10% of energy from renewable resources by 2021. In support of this ambitious yet attainable pledge, The NGC Group of Companies has made tangible and quantifiable steps towards becoming an agent of change for energy transition locally.

NGC is using a lens of sustainability to effect a rigorous Green Agenda that will impact all aspects of the Group's business operations, investments and growth strategies. The Company has undertaken many initiatives as it charts a transformative course in the clean energy space. These include the development of an energy efficiency app to bring awareness around changing individual energy consumption patterns; an energy education programme implemented in selected schools; a Super ESCO project to improve efficiency within the operations of small industrial consumers; exploration of several renewable energy projects through National Energy; marketing of CNG as a cleaner transport fuel; and a Carbon Sequestration Study to measure the impact of NGC's large-scale reforestation project.

Measuring methane emissions

It is no secret that the energy sector is a major contributor to greenhouse gas (GHG) emissions. Methane, which is the primary component of natural gas, is widely considered the 'other' greenhouse gas, next to carbon dioxide,



as it is more efficient at trapping heat in the atmosphere. Addressing methane emissions is the fastest, most effective way to positively impact the current rate of global warming. Armed with this knowledge, NGC has made monitoring and measuring natural gas leaks and methane emissions one of the priorities within its Green Agenda.

Infrared cameras

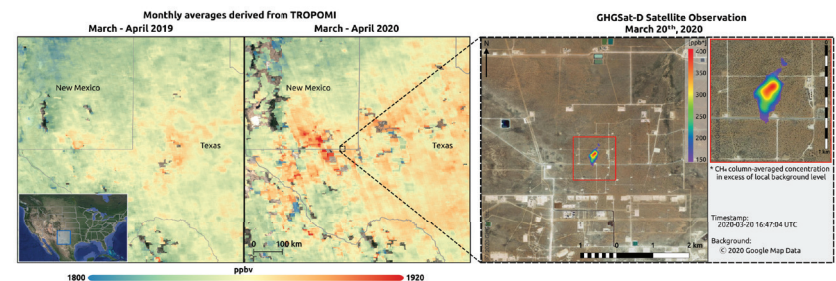
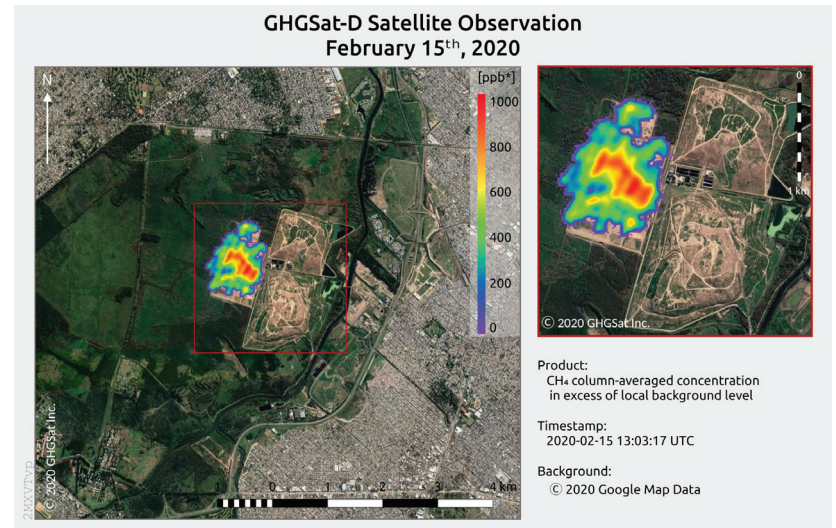
In 2020, the Company invested in optical and infrared camera technology as a tool for detecting and obtaining digitised imagery of natural gas leaks. The camera equipment is used by NGC's Pipeline Maintenance teams to detect fugitive emissions in the field, in real time.

NGC is also leveraging synergies among technologies as part of leak detection efforts. A specialist drone with the capability to carry the infrared camera and Light Detection & Ranging (LiDAR) sensors as well as gas detection sensors has been purchased. In 2021, the use of infrared camera technology will provide a pathway for NGC to reduce methane emissions, through accurate leak detection and timely repairs of any breaches to the pipeline infrastructure.

Satellite monitoring

NGC is augmenting its in-house capabilities to detect methane emissions through a new partnership with Orbital Eye B.V. NGC has recently signed an agreement with the Netherlands-based technology solutions provider to use satellite data and algorithms to monitor the GHG and methane output associated with Trinidad and Tobago's industrial offshore and onshore assets over the next three years.

The research data collected will be instrumental in developing management plans and technological solutions to meet NGC's operational target of near-zero methane emissions on its natural gas infrastructure. The agreement also provides the



opportunity for the satellite monitoring and data collection exercise to be expanded beyond the operations of The NGC Group. It allows for the survey of the entire energy landscape of Trinidad and Tobago and the wider Caribbean region, and fosters knowledge sharing across the value chain.

International representation

NGC is a member of the International Gas Union (IGU), and now has representation on the IGU's panel of methane experts whose mandate is to develop standardised strategies to reduce methane globally and to share best practices and technology to reduce methane emissions. This puts NGC in a position to help shape the conversation on how best to reduce methane emissions locally and in the region.

The IGU is not the only international organisation where NGC has sought to leverage its expertise. The Company was recently accepted as a member of the United Nations Environmental Programme, Oil and Gas Methane Partnership (OGMP). NGC has now joined governments, international organisations, non-government organisations, and other influential players in the oil and gas industry, to collaborate through the OGMP, to raise awareness and responsibly address methane emissions.

Optimising value

The application of these partnerships and technologies for methane emission detection is part of NGC's Leak Detection and Repair (LDAR) Programme. The programme ties into the national environmental policy to reduce Trinidad and Tobago's carbon footprint. These deliberate interventions are not just philanthropic in nature, they offer great potential to positively impact the Company's bottom line. It makes good economic sense that NGC would want to detect and arrest any methane emissions that could otherwise remain in the gas stream and generate revenue. Every molecule lost is a molecule that does not earn income. By monitoring gas leaks, NGC can improve pipeline efficiencies and asset integrity which will in turn increase profitability.

Future results

The new pathways the NGC has implemented to monitor methane emissions are expected to produce tangible data sets in 2021 and beyond. The Company will use the measured results to inform programmes and plans within the Green Agenda. NGC is well poised to take decisive action, that will be data-driven, to support Trinidad and Tobago in attaining its climate change targets.

AT THE FOREFRONT OF *Energy*