Emissions Management and Advisory

Challenges:
In the oil and gas industry, upstream operations account for nearly 85% of methane emissions, with gas transportation and other downstream operations responsible for the remaining 15%.

Tackling methane leaks and flaring offers a double dividend: it alleviates pressure on tight gas markets in many parts of the world, enhancing energy security - and lowers emissions at the same time

Faith Birol, Executive Director, IEA

The future of energy will require oil and gas, however society is demanding efficiency and a lower emissions in the industry. One of the key levers to achieve this reduction in emissions intensities is to tackle methane emissions .There is increasing concern that total methane emissions associated with oil and gas production are substantially higher than reported in official inventories.

There is an opportunity for both emission reduction solutions and digitalization to address the energy trilemma and position the industry for a lower carbon world. We are enabling our customers achieve net-zero goals and transparency through the Global Reporting Initiatives GRI, and the GHG accounting standards. Oil and Gas Methane partnership (OGMP2.0) gold level aspiration is supported by our expertise

Emissions management

lidentify innovative and efficient solutions that reduces emissions from planning phase to establish baseline to well delivery.

Enabled by in-house expertise and partnership with market leading solution providers to measure , monitor and report emissions.

Forecast and visualization of greenhouse gas (GHG) emission to enable continuous improvement.

- **Minimize Non-Productive Time**
- **Technology and solution optimization**
- **Optimize well performance**
- **Shared Engineering control**
- **Emissions Management from operational emissions sources**

Emissions reduction: enabling our customers enhance their operational efficiency , reduce their scope 1 and 2 emissions through emissions measurements and abatement opportunities.

Reduce methane venting, fugitives and flaring at operational sites through innovative solutions in collaboration with our technical partnership.

Carbon Management Plan development for our customers to support their overall Net-zero ambitions with tangible , impactful actions that prioritizes GHG emissions through enhanced energy efficiency , integration with renewables and the deployment of innovative solutions at operational sites. Emissions sources:

- **Process and Equipment Vented**
- **Process & equipment Flared**
- **Associated Gas Vented & Flared**
- **Fugitive**
- **Other combustion**

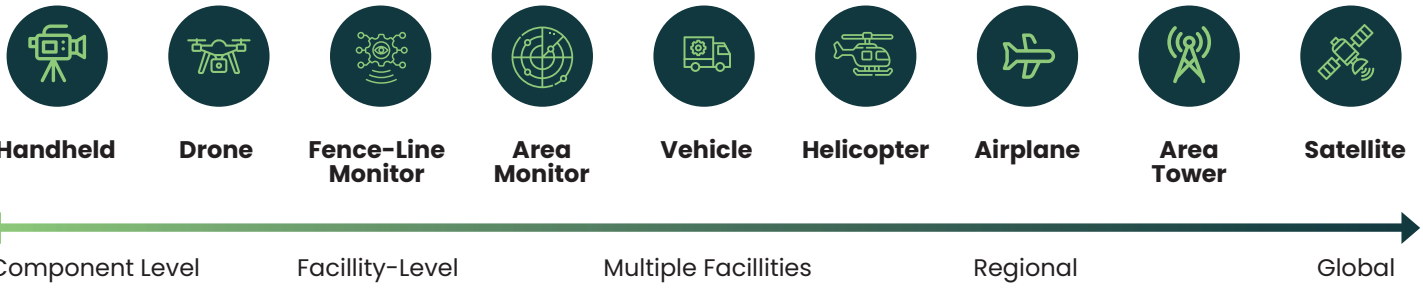
At CNIAS, we support our customers on their emissions reduction journey through methane emissions measurement, reporting and verification

Technology solution Asset optimization, Drilling efficiency and consulting services or methane emissions measurement , reporting and verification

As your emission reduction partner, we go beyond performing field measurements and delivering reports.

- **Create gap analysis and roadmaps**
- **Run pilot projects to test the latest measurement technologies**
- **Update you on the latest changes or new environmental regulations**
- **Train your professionals**
- **Help you capture and interpret emission data with software through secured platform**

Advanced Emissions Detection and Quantification Platforms



We deploy technologies for source level measurement:

Infrared Gas detection FLIR OGI: This technology enables operators to visualize the unique infrared absorption patterns of methane , and it is visible as plumes

LiDAR and Hyperspectral Imaging:
This technology is used to quantify methane leaks.

At an equipment, the methane in the air absorbs and scatter some of this light , the returned scattered light is used as a measurement of the total concentration of Methane along the path.

Our measurement from market leading technology supports your OGMP 2.0 pathway

Continuous monitoring / Fixed Monitoring : The OGI cameras can be used , mid wave infrared and long wave infrared OGI. Fixed methane monitoring systems installed at key points, such as compressor stations, valve stations, and metering stations, provide continuous data on methane emissions.

Several short-term mitigation strategies can be implemented to reduce methane emissions across the transmission system:

Routine Maintenance and Inspection: Regular inspections of compressor seals, valve gaskets, and flanged connections can help identify and address leaks early.

Leak Detection and Repair (LDAR): Operators should establish a comprehensive LDAR program to monitor methane emissions continuously. Routine checks using handheld methane detectors or OGI cameras can identify methane leaks, and repairs leaks will help reduce methane emissions.

Minimize Venting: Venting of methane during routine operations and maintenance should be minimized. For instance, automatic shut-off valves can prevent methane release.

Compressor Retrofits: Retrofitting compressor stations with low-bleed or zero-bleed technologies can significantly reduce methane emissions.

Flaring or Recovery: Installing or optimizing flaring systems to burn excess methane is an immediate way to mitigate emissions. In the longer term, Glare gas recovery systems could be considered to capture and repurpose natural gas

Consulting and Advisory Services

Evaluation of policy and regulations to align with your corporate goals

Quantification of carbon intensity

Verification of emissions reductions

Assessment of potential solution to Avoid, Reduce and Offset Emissions

Feasibility and Economics

COMPLETE ENERGY SOLUTIONS PARTNER

Progress Through Energy

From strategy to execution,
we power energy excellence.