

## **Transition of the Energy Sector towards Methane Emissions Monitoring and Reduction based on Emerging Frameworks**

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The balance between growing energy demands and global climate targets is a delicate one to maintain. The need for limiting its environmental impact has become evident to the Energy Sector, dictating higher transparency and granularity of the emissions data from operated and non-operated assets. Specifically, in the European Union, an upcoming regulation targets the reporting of methane emissions and their reduction, bringing operators to a critical crossroad, and calling for drastic reforms and actions.

For satisfying the ultimate global request for reduction of methane emissions, as a first step, a proper development of emissions data baselines is required. The new regulation offers a great opportunity and motivation for operators to deepen their understanding of their emission sources, as well as being the starting point for the collection of methane data. In this regard, as Oil & Gas operators, we need to follow an agile approach while preparing for the new era. This paper will present the integrated approach undertaken to promote, adopt and execute key incentives that positively contribute to the Company's ethical and legal compliance.

For the required methane reporting levels, source-level and site-level quantification, a full detailed inventory of assets, facilities, and wells are prerequisites, especially for quantifying fugitive emissions. This entails a challenge by itself: asset documentation, listings of equipment and components up to flange level, numerous options for storage of the inventory and many more elements need to be defined, embraced and deployed. Furthermore, measurement at each potential core methane source is essential in order to assess any emission reduction initiatives, considering that all contributions are important so that the methane intensity target of below 0.1% is achieved by 2030, as per Company's targets. As anticipated, the rising demand for methane measurements has led to a plethora of available, new, and improved, technologies and methodologies. Therefore, via a large number of performed pilot tests it was imperative to evaluate the different solutions at diverse facilities in terms of their automation level, age, type and location in order to finally determine the most favorable solution for different scenarios, and ultimately build the overall strategy for the Energy division's portfolio.

This paper portrays the steps involved in adopting a new strategy for methane measurement, monitoring, reporting and emissions reduction. Furthermore, it contains the lessons learnt from the pilot tests, covering experience with different technologies, big data management and the potential "automated" workflows to support the future data acquisition, integration, contextualization, and visualization.