

GOVERNMENT OF INDIA
MINISTRY OF PETROLEUM AND NATURAL GAS
RAJYA SABHA
UNSTARRED QUESTION NO -4113
ANSWERED ON – 30/03/2026

AI USAGE IN TRACKING EMISSIONS FROM GAS AND OIL WELLS

4113. DR. FAUZIA KHAN:

Will the Minister of PETROLEUM AND NATURAL GAS be pleased to state:

- (a) whether Government is using AI-driven satellite and drone-based systems for near real-time monitoring of methane leaks and fugitive emissions in oil and gas infrastructure;
- (b) if so, the details of recent outcomes or initiatives and if not, the reasons therefor;
- (c) the measures implemented to strengthen public access to granular emission data enforce accountability for chronic sources; and
- (d) the details of plans to promote digital twin adoption for predictive maintenance and safety enhancements across critical pipelines and refinery assets?

ANSWER

THE MINISTER OF STATE IN THE MINISTRY OF PETROLEUM AND NATURAL GAS
(SHRI SURESH GOPI)

(a) to (d): Tropospheric Measuring Instrument (TROPOMI) Satellite aided with remote sensing, Leak Detection and Repair (LDAR) programmes, and ground-based surveys, etc. are being utilized by various operators to enhance emission monitoring and mitigation. Further, Drone-based surveys and other advanced detection techniques have been deployed in select operational areas to identify and quantify emissions, and to facilitate timely corrective actions.

To enhance transparency and accountability, oil and gas companies disclose emissions data in line with applicable regulatory frameworks, including sustainability reporting requirements such as Business Responsibility and Sustainability Reports (BRSR). These disclosures, along with digital monitoring and reporting systems, contribute to improved access to emissions-related information.

With regard to digital technologies, operators such as Oil and Natural Gas Corporation Ltd. (ONGC) have implemented systems such as Supervisory Control and Data Acquisition (SCADA) based monitoring, adopting pipeline integrity management systems (PIMS), Software that serves as a comprehensive digital analytics platform enabling visualization-based pipeline integrity assessment, while Oil India Limited (OIL) has implemented accelerating digital transformation under Project Digital Readiness for Innovation & Value in E&P (DRIVE) 2.0, leveraging advanced analytics, cloud technologies and AI-driven simulations to modernize upstream operations, and other data integration platforms that enable real-time monitoring, analysis and decision-making. The Government promulgates minimum safety requirements to be followed by industry and does not restrict companies from adopting any advanced technology beyond the recommended minimum requirements.
