SENSOR X Solutions

CASE STUDY

Leading European TSO Implements SensorX FluX Aero

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Background

A European Transmission System Operator (TSO) operates a high-capacity gas compressor station with multiple centrifugal compressors, pressure vessels, and vent stacks. The operator needed to quantify and map fugitve methane emissions to comply with the EU Methane Regulation (EU 2024/1114) and its LDAR reporting requirements.

Deployment

SensorX Solutions conducted a FluX Aero survey using a UAV equipped with the TDLAS sniffer module, wind sensor, and GPS/INS navigation.

- Flight altitude: 10–30 m AGL
- Coverage: 0.8 km² site area
- Duration: 25 minutes
- Data points: >10,000 methane concentration measurements

The FluX Aero mapped the airspace in a grid pattern, directly sampling air and quantifying CH_4 concentrations in real ppm values.

Results

1. High-resolution methane heat map:

The FluX Aero produced a 3D emission plume heat map showing elevated CH_4 near a compressor seal vent and a pressure-relief valve. Concentrations ranged from background (1.8 ppm) to >15 ppm, enabling precise localization of emission sources.

2. Quantitative emission rate estimation:

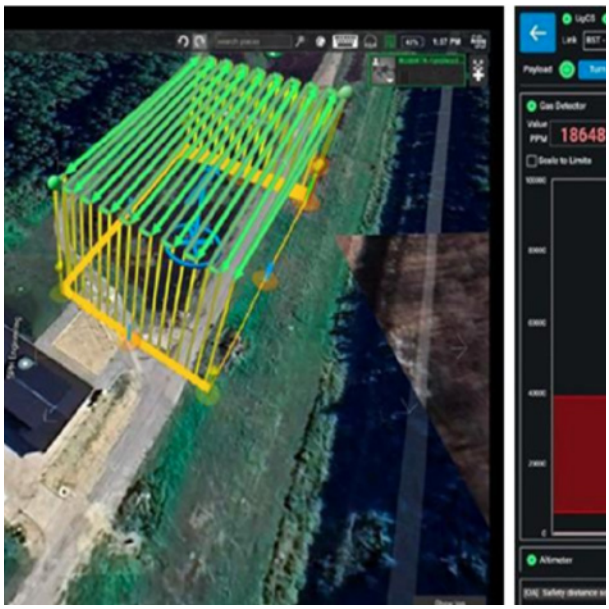
Using integrated wind and meteorological data, the system calculated a leak rate of ~42 g/h — well below safety thresholds but significant for inventory purposes.

3. LDAR integration:

Results were ingested into the TSO's LDAR management system, enabling automatic flagging and maintenance scheduling.

4. Verification and cost efficiency:

- Inspection duration reduced by >70% compared to a manual survey.
- Detection threshold improved to <100 ppb methane.
- Zero safety incidents; no need for ground access to high-pressure zones.



Outcome

The TSO achieved:

- Full compliance with EU Methane Regulation and OGMP 2.0 reporting standards.
- Enhanced detection capability, identifying low-level leaks invisible to handheld analyzers.
- Operational cost reduction of ~60%.
- Improved ESG metrics through transparent, verifiable methane accounting.

Customer Testimonial

"SensorX FluX Aero allowed us to visualize our compressor station's emissions in unprecedented detail.

The combination of accuracy, efficiency, and compliance readiness makes it an essential part of our methane management strategy."

— Environmental Manager, European Gas TSO

Value Proposition

Cutting-Edge drone-based methane inspections with the FluX Aero

"High-precision methane emission detection from the air- delivering accurate, reliable, and cost-effective methane monitoring at scale."

Core Value

A TDLAS methane sniffer sensor mounted on a drone offers quantitative, near real-time, and spatially resolved methane concentration data with laboratory- grade accuracy - without the need for ground access or manual sampling.

Key Benefits

1. Unmatched Measurement Accuracy

- TDLAS technology provides ppm-level precision and quantitative gas concentration data (not just relative measurements), allowing for regulatory-grade emission quantification.
- Unlike optical imaging or plume visualization methods (e.g., IR cameras), it measures true concentration values and enables mass flux estimation when combined with wind data.

2. Reliability Across Environments

- Works effectively across varied terrain (e.g., pipelines, compressor stations, landfills, storage tanks).
- Insensitive to dust, sunlight, or temperature variations, unlike passive optical systems.
- Provides repeatable and traceable results, meeting EPA, EU Methane Regulation and OGMP 2.0 performance requirements.

3. Operational Efficiency

- Drone-mounted deployment enables rapid, safe, and remote surveys of large or inaccessible assets.
- Reduces the time, cost, and safety risk associated with manual ground surveys or fixed monitoring systems.
- Quick data collection enables frequent monitoring and trend analysis over time.

4. Actionable Insights

- Integrated with GPS and wind sensors, the system can estimate leak locations and emission rates.
- Data can be integrated into GIS or emission management platforms, supporting real-time decision-making and compliance reporting.

5. Environmental and Regulatory Impact

- Supports methane intensity reduction goals and ESG commitments.
- Enables operators to detect, quantify, and verify emissions in line with regulatory frameworks (e.g., U.S. EPA, EU Methane Regulation, OGMP 2.0).

Want to explore how the FluX Aero can help with enhancing your emissions management?

Contact our team of methane experts: sales@sensorXsolutions.com

Sarnen, Switzerland

SENSORX Solutions