

DEUS POLLUTRACK the European climate & air quality network

REAL TIME MONITORING OF AIR QUALITY
AND GHG EMISSIONS IN THE INDUSTRY





Challenges



Greenwashing



Measured and verified data is essential in addressing greenwashing and showcasing your commitment to sustainability.



Photographer: Chris Ratcliffe/Bloomberg

Shell Greenwashing Challenge Highlights Risk of ESG Claims

Feb. 16, 2023, 11:30 AM



- Greenwashing challenges target company ESG reporting
- Companies must prove their pledges are followed, lawyers say



Jennifer Hijazi
Reporter





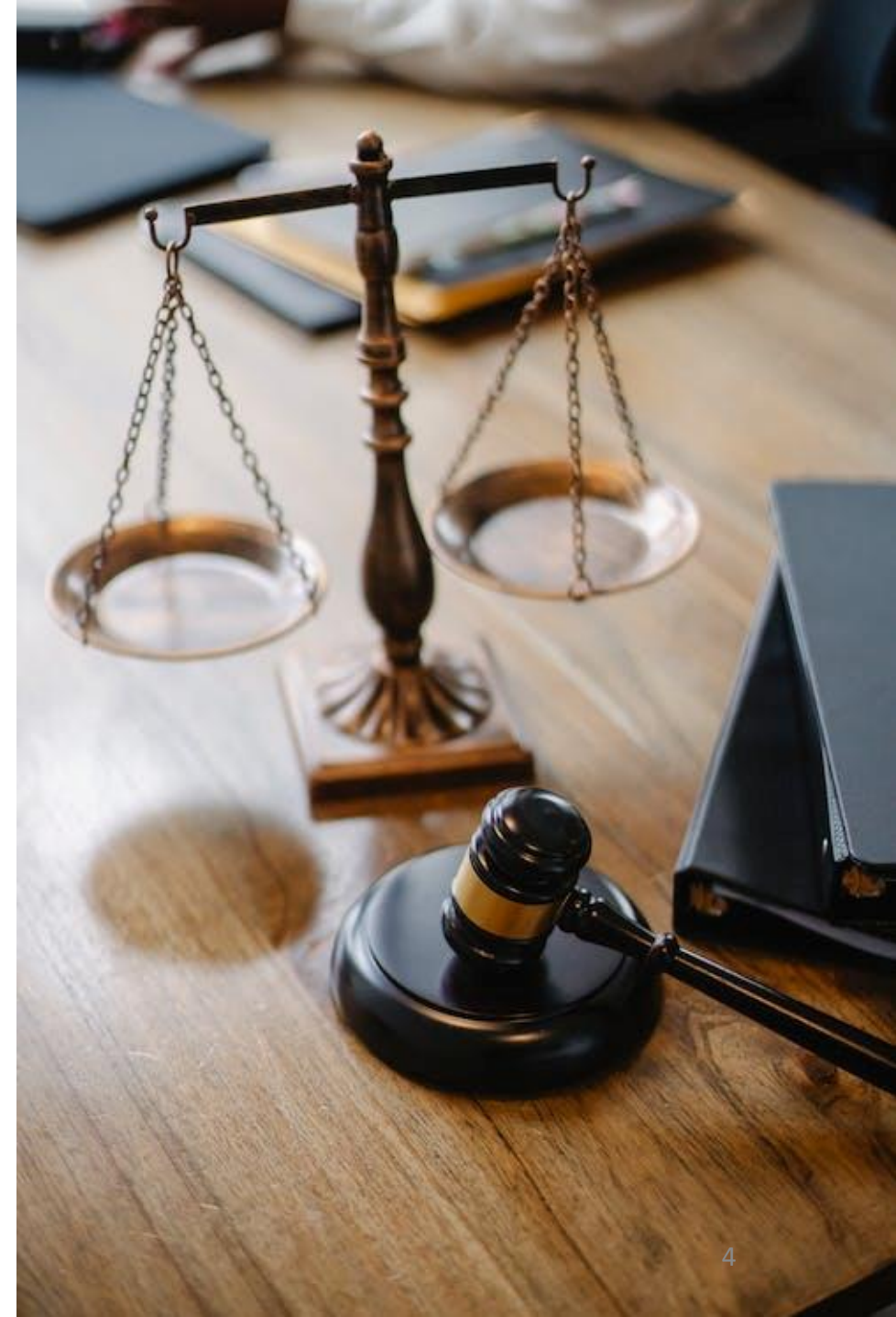
Regulatory requirements

Detection, Reduction, and Verification

The industry is subject to numerous environmental regulations, and monitoring emissions are claimed.

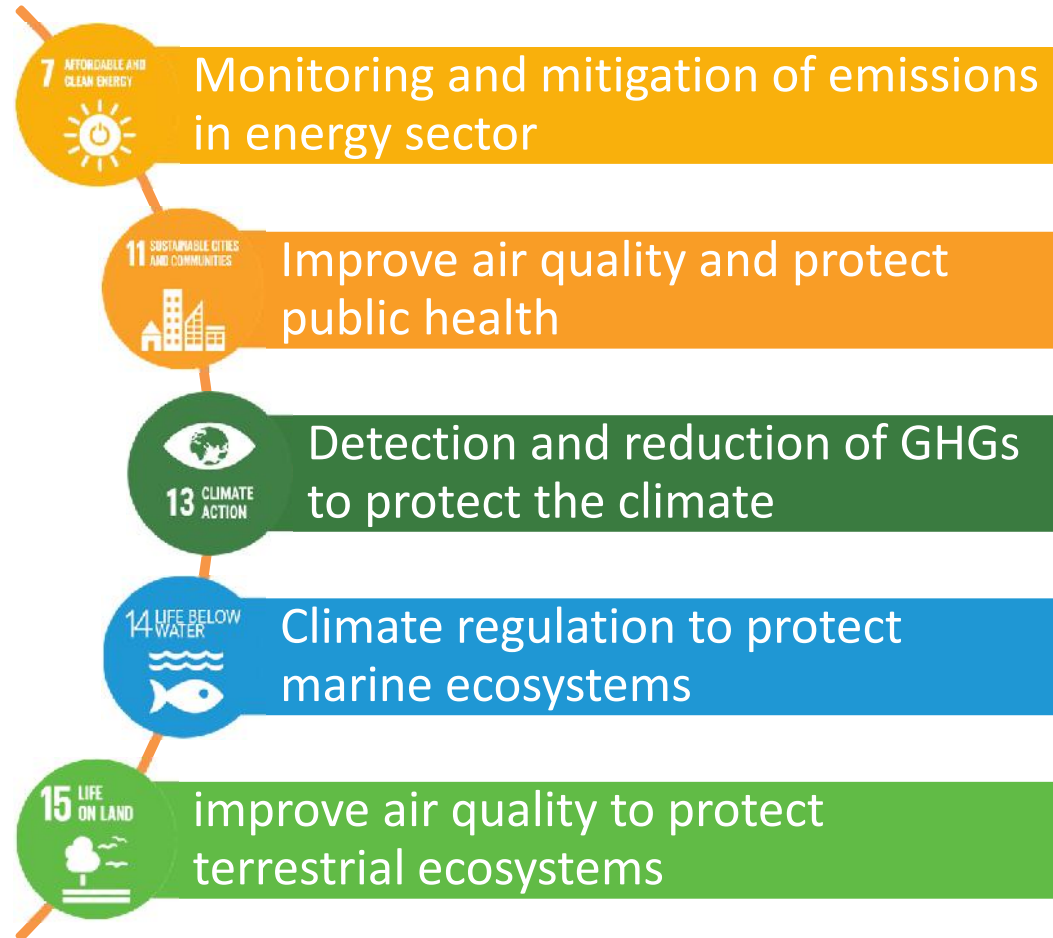


GREENHOUSE
GAS PROTOCOL





Monitoring Industry's Emissions for a Sustainable Future





Who we are

DEUS-Pollutrack Network Coverage



The **LARGEST 5G-mesh** in Europe measuring:

 AIR
POLLUTION

 WEATHER

 TRAFFIC

4500
mobile
sensors

30
European
cities

45
million
citizens





TRAFFIC

$\text{NO}_2 + \text{PM}^1 + \text{PM}^{2,5} + \text{PM}^{10}$
+ Qualified Traffic Monitoring
+ Weather



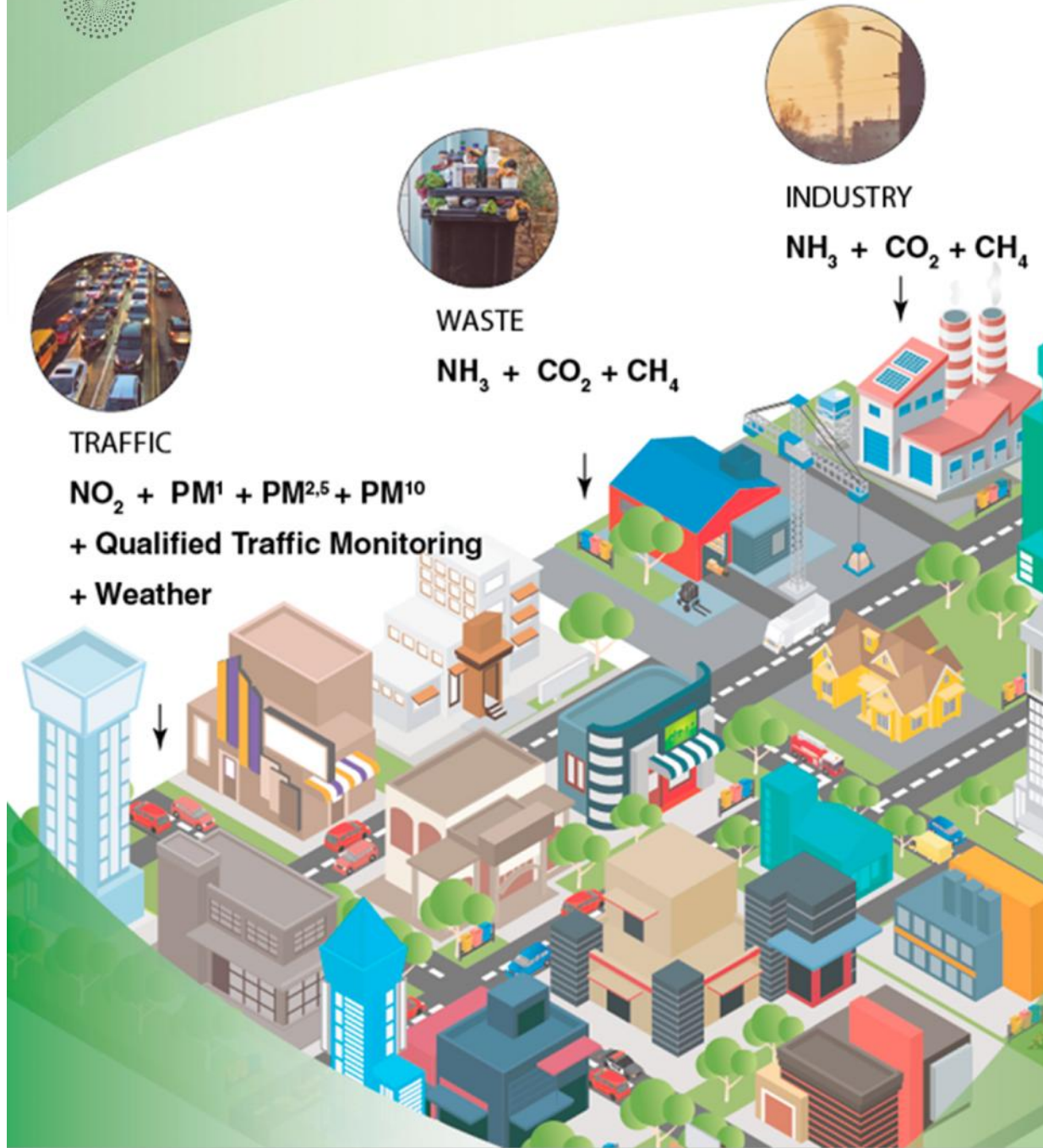
WASTE

$\text{NH}_3 + \text{CO}_2 + \text{CH}_4$



INDUSTRY

$\text{NH}_3 + \text{CO}_2 + \text{CH}_4$








From cities to the industry

We strive to enable industry to:

- ✓ detect emissions consistently
- ✓ reduce emissions
- ✓ provide policymakers reliable emissions data
- ✓ protect public health and the environment
- ✓ become a pioneer in GHG Emissions monitoring



Why Continuous Emissions Monitoring

-  **Early Detection:** Quick detection and repairing of micro leaks, and preventing costly downtime, fines, or damage to equipment.
-  **Health and Safety:** Protect your employees and the surrounding community from hazardous pollutants.
-  **Reputation:** improve your reputation among customers, investors, and the public.
-  **Efficiency:** Identifying areas where the process can be improved to emissions reductions, hence cost savings and improved efficiency.
-  **Environmental Responsibility:** provide transparent and accessible data to stakeholders – improve your ranking.





The solution



Problems



**NO COST-EFFECTIVE
SOLUTION FOR
MICRO-LEAKS**



**LACK OF
TECHNICAL
STAFF**



**TRUSTWORTHINESS
(NEIGHBORS DON'T
BELIEVE THE INFO)**



**ENVIRONMENTAL
REGULATIONS
(CSRD, ESG,
OMGP2.0 LEVEL 5)**



**HAZARDOUS
EMISSIONS FOR
WORKERS'
HEALTH**



Solutions

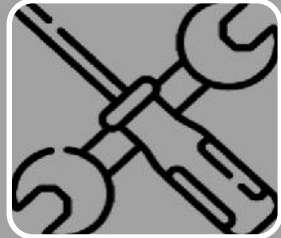
Early leak detection
Prevention of emissions and losses

Low maintenance & Plug and play installation

Real-time data and automatic report generation

Comply with environmental regulations

Show your stakeholders that you value health and the environment





Breakthrough technology



Customizable and Modular

- 🌍 Plug and Play installation
- 🌍 Robust aluminum housing system
- 🌍 Real time emission measurement
- 🌍 Self-sufficient module
- 🌍 Add-on solutions for existing systems





Dashboard

The IoT device we've developed for real-time emissions monitoring comes equipped with an intelligent and interactive Dashboard

A wide range of features including:

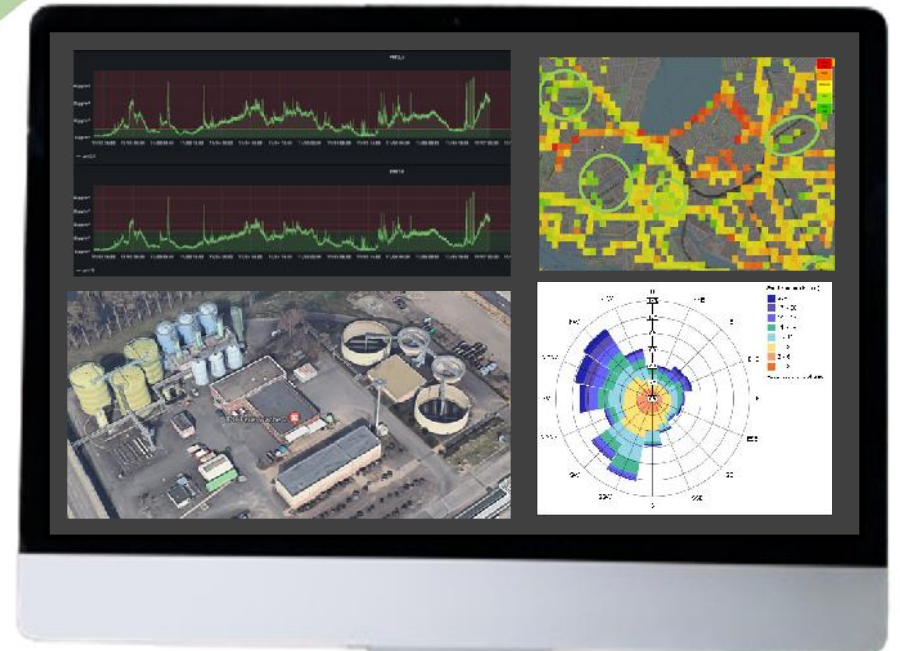
Analytics

Alerts

Remote Calibration

Reports

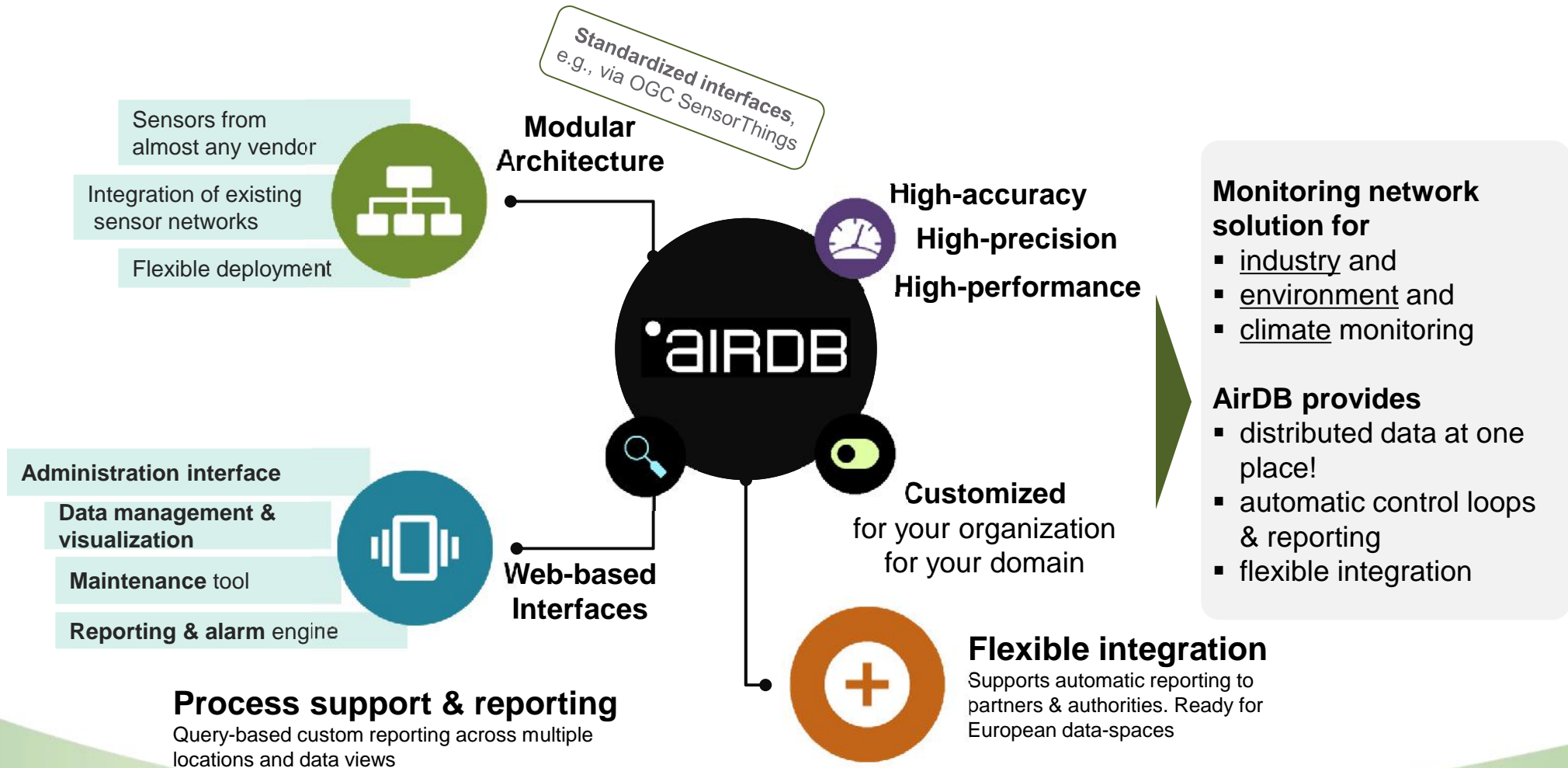
Smart Notifications





High Level cooperation with AIT

AIT's mega software as an additional detailed dashboard





Reports

Automated reporting of environmental data and emissions for **ESG** and **CSRD**

The Corporate Sustainability Reporting Directive (CSRD): companies must measure their direct emissions from sources that are owned or controlled.



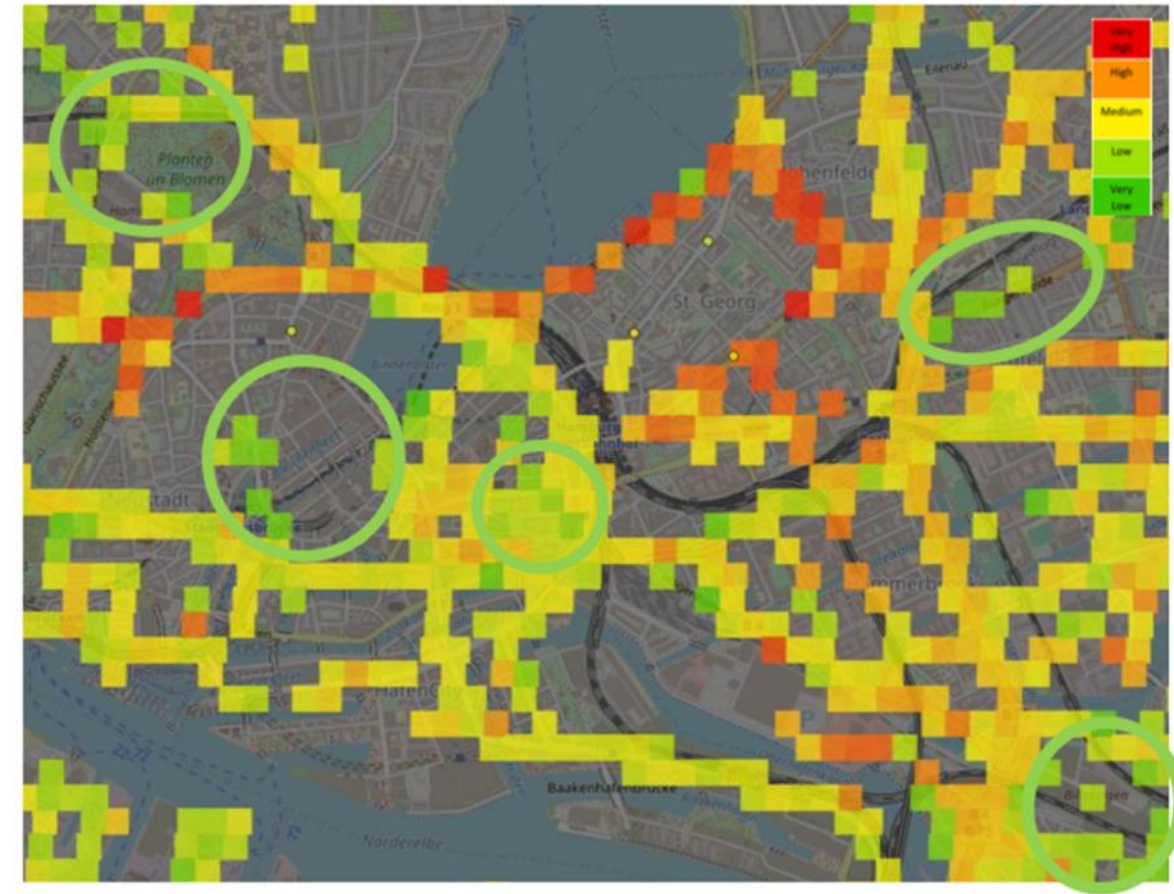


Hotspots and Green zones of your facilities

Detect Micro-Green Zones

We analyze the area of your facility just like the cities and identify the areas that always remain green.

The detailed analysis provide a **heterogeneous area** so you can make data-driven decision to keep your employees safe.



Study period: 7 days 12/01/2021-19/01/2022



Methane Module

- Robust aluminum housing unit with lifetime of 30 years
- Realtime, customizable dashboard
- High selectivity and long-term stability measurement
- Fast response time
- Compact and self-contained design permitting
- Continuous sensor status monitoring

Main applications:

- ✓ **Leak Detection:** Portable instruments, static measurement stations, vehicle-mounted, underwater, refrigeration, toxic gases, ...
- ✓ **Environmental & Climate Monitoring:** Oil and Gas industry, landfill, biogas, livestock, underwater research



Powered by **a:etris**



METHANE EMISSIONS

WHAT YOU DON'T MEASURE, YOU CAN'T CONTROL!



TARGETS:

- Early detection of fugitive methane emissions
- Leakage prevention through real-time area monitoring



Benefits:

- Optimization of production plants
- No blanket limits of 500ppm if the background level is only 2ppm, alarm already at 10ppm in dependence on technical equipment Specifics
- Time periods for actions at early detection thresholds

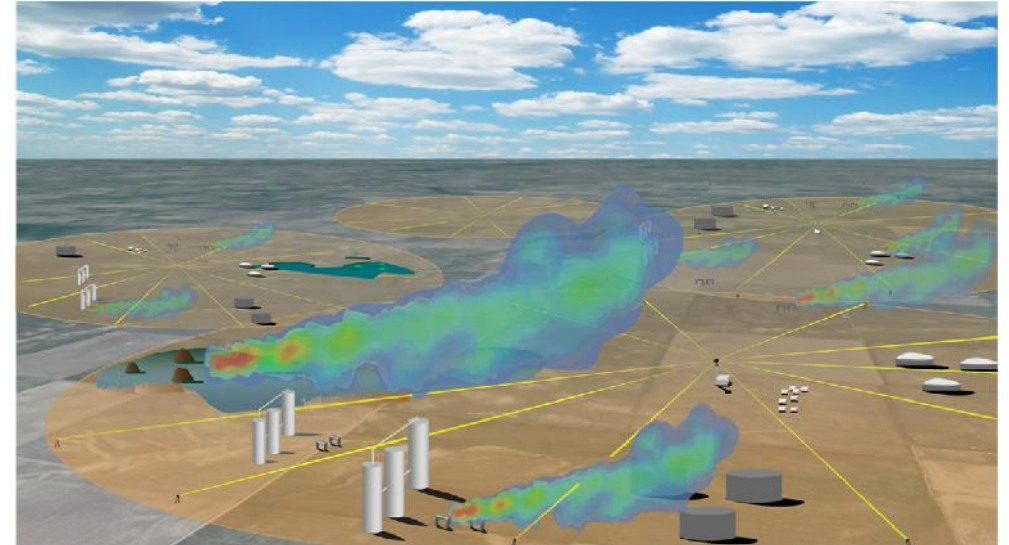


Image source: <https://climateobserver.org/methane-leaks-are-speeding-climate-change/>



EMISSIONS WARNING

FUGITIVE METHANE EMISSIONS

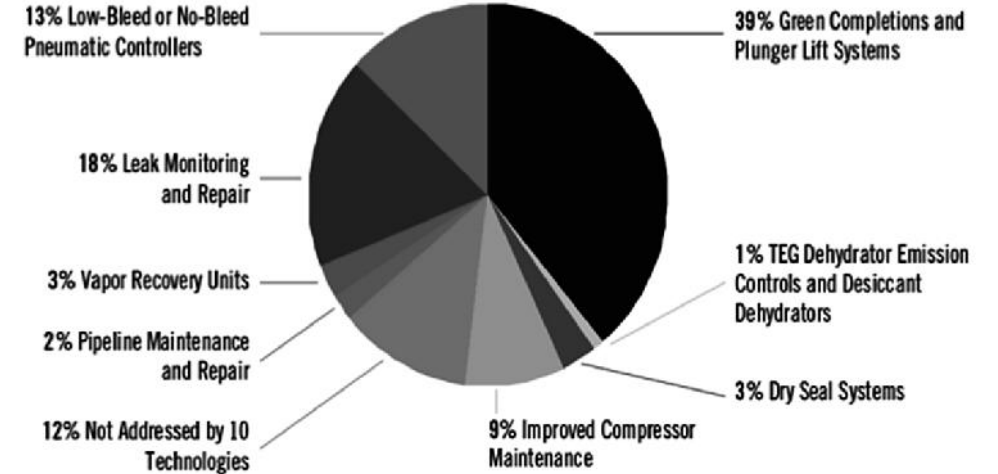
3-level plans:

1. One-year real-time monitoring in the whole area of production (industry park).
2. Technological analysis of minor leaks in equipment components.
3. Re-engineering of these equipment components.

Conclusion:

- ➔ Continuous leakage monitoring leads to optimization of industrial unit construction in the future.
- ➔ Reduction of methane slip in the medium term by an additional up to 50%.
- ➔ With early leak detection, up to 90% of methane emissions could be avoided.

Fugitive methane emissions account for 20% of methane emissions, about 5% of total GHG emissions.



Strategies and technologies to reduce fugitive methane emissions and energy waste (Source: Harvey, S, (2012) 70)
https://ec.europa.eu/info/sites/default/files/energy_climate_change_environment/events/presentations/speaker_intervention_-_european_university_institute.pdf



We facilitate OGMP2 compliance



Enhance your environmental performance and ensure regulatory compliance to avoid penalties.



Access best practices and technologies to reduce methane emissions and mitigate climate change.



Cost savings through improved efficiency

By monitoring methane emissions in real-time, we enable you to develop effective reduction strategies and meet OGMP2 requirements at level 5.





Continuous Emission Measurement vs other methods

Accuracy of detection

DEUS-Pollutrack



High

Drones



Analytics



Cameras



Frequency of measurement

Irregular

Continuous

Planes



Satellites



LDAR

Low



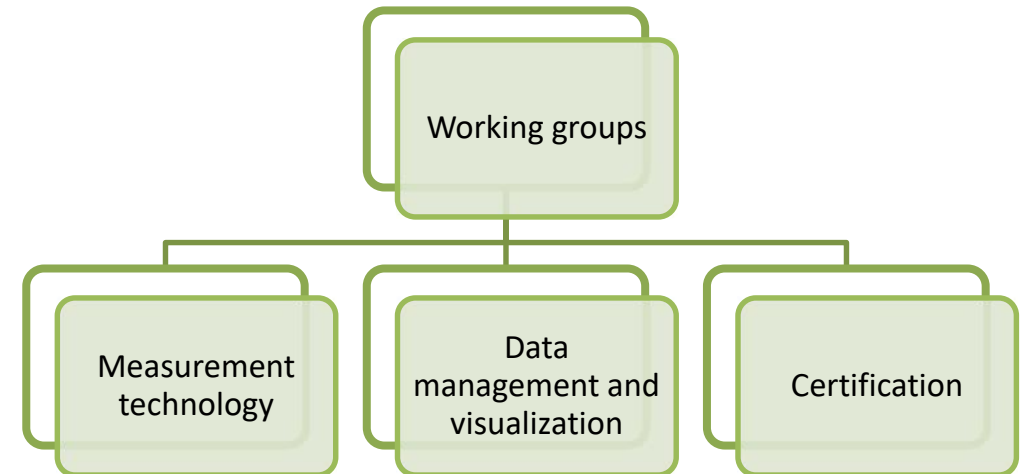
New Standards

DIN SPEC



German Institute for standardization

- Describe measurement technique
 - TDLS (Tunable Diode Laser Spectroscopy) drift; calibration, selectivity,
 - Other evaluated measurement techniques
 - Sensitivity, Continuous, Other meteorological variables
- Describe entire system/Data transmission/Data security/Maintenance
- Data management/ Computational model
- Live visualization
- Alarm system/ thresholds
- Live Certificate (Gold Standard = 99% of the time under limit, Silver Standard 85%..)
- Monthly evaluation of the live certificate





Research Projects

DEUS Smart Air



Funded by:



on the basis of a decision
by the German Bundestag



DEUS Pollutrack is a pioneer for Green Tech partnerships, operates the largest networked environmental data platform in Europe and thus makes an indispensable contribution to environmental justice in urban areas.

The Federal Ministry of Transport and Digital Infrastructure is funding the development of a specialized information system and a 24-hour forecasting system with a total volume of over **EUR 4 million** through the mFUND.



Market potential



The European Commission's Joint Research Centre estimated the potential size of the methane monitoring market in Europe to be **between €1.3 billion and €3.3 billion per year by 2030.**



MarketsandMarkets: the global market for methane monitoring technologies was valued at **USD 84.8 million in 2020** and is expected to grow at a **CAGR of 12.7%** from 2021 to 2026.

We have extensive figures on the market potential in further slides

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Published studies:
Springer Verlag 2020
Atmosphere 2021
SSRN 2022

https://link.springer.com/chapter/10.1007/978-3-658-30889-6_7
<https://doi.org/10.3390/atmos12050529>
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4089596

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