

Innovative monitoring solutions and sensor technologies sought to prevent Volatile Organic Compounds (VOC) breakthrough in biomethane streams

Summary

Profile type

Technology request

Company's country

Netherlands

POD reference

TRNL20260901011

Profile status

PUBLISHED

Type of partnership

**Commercial agreement with
technical assistance****Research and development
cooperation agreement**

Targeted countries

• All countries

Contact Person

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Term of validity

4 Sep 2026**4 Sep 2027**

Last update

4 Sep 2026

General Information

Short summary

A renewable gas platform seeks international partners to optimize biomethane filtration. The goal is to predict activated carbon filter saturation and detect Volatile Organic Compounds. They seek technology providers, research groups, or industrial partners offering online sensors, analytical systems, or predictive methods. Partnerships can include commercial, technical, R&D, or pilot cooperation.

Full description

Background

Biomethane injected into the natural gas grid must comply with strict gas quality specifications. One of these requirements is that the gas must have the same odor characteristics as natural gas, which is achieved through the addition of an odorant.

During biomethane production, Volatile Organic Compounds (VOC) can occasionally be present in the gas stream. These compounds may mask the odorant, resulting in reduced odor perception and potentially causing the biomethane to fail grid injection requirements.

To prevent this issue, Volatile Organic Compounds are typically removed using activated carbon filtration systems. However, it is often difficult to determine when an activated carbon filter is approaching saturation. As a result, Volatile Organic Compounds breakthrough can occur before filter replacement is initiated.

Technical Challenge

We are seeking a monitoring solution capable of detecting or predicting the breakthrough of volatile fatty acids in activated carbon filters used in biomethane production facilities.

The ideal system should:

- Continuously or periodically monitor the gas stream downstream of the activated carbon filter.

- Detect the presence of volatile fatty acids at very low concentrations before they reach levels that can interfere with odor perception.

- Provide early warning of impending filter saturation or breakthrough.

- Operate reliably in biomethane production environments.

- Be suitable for integration into existing gas treatment installations.

Expected Outcome

The objective is to develop a reliable method for determining the optimal replacement moment of activated carbon filters, thereby preventing Volatile Organic Compounds breakthrough, ensuring compliance with biomethane grid injection specifications, and reducing unnecessary filter replacement costs.

Advantages and innovations

Optimized filter lifetime: Avoids high operational costs by replacing activated carbon filters only when actually needed.

Continuous VOC monitoring: Replaces static testing with continuous online analytical instruments and advanced sensor technologies in biomethane streams.

Guaranteed grid compliance: Prevents VOC breakthrough entirely, ensuring the gas consistently meets strict grid injection specifications.

Predictive replacement intervals: Uses innovative forecasting methods to determine the exact moment of filter saturation rather than relying on estimates.

Technical specification or expertise sought

The client would like to identify technology providers, research organizations, or industrial partners that can offer:

Existing commercial solutions for VOC breakthrough monitoring.

Sensor technologies capable of detecting Volatile Organic Compounds in biomethane streams.

Online analytical instruments or monitoring systems.

Innovative methods for predicting activated carbon saturation and optimizing filter replacement intervals.

Expertise in gas quality monitoring for biomethane and renewable gas applications.

Type of Cooperation Sought

Commercial agreement with technical assistance

Technical cooperation agreement

Research and development cooperation

Pilot or demonstration projects

Stage of development

Already on the market

IPR Status

Sustainable Development goals

• **Goal 7: Affordable and Clean Energy**

IPR Notes

Partner Sought

Expected role of the partner

Technology providers: Supply and install online analytical instruments, sensors, or monitoring systems for VOC breakthrough detection.

Research organizations / RTOs: Provide expertise in gas quality monitoring and co-develop predictive models for filter saturation.

Industrial partners: Partner in pilot projects to validate monitoring technologies under real-world biomethane production conditions.

Type of partnership

Commercial agreement with technical assistance
Research and development cooperation agreement

Type and size of the partner

- **SME 11-49**
- **Big company**
- **SME <=10**
- **R&D Institution**
- **SME 50 - 249**

Dissemination

Technology keywords

- **04006 - Biogas and anaerobic digestion (AD)**

Market keywords

- **06003009 - Biomass and Biofuels**

Targeted countries

- **All countries**

Sector groups involved

- **Renewable Energy**