



Hackathon!

GasumHackathon – Harnessing the biogenic CO₂ from biogas upgrading to value adding applications

Gasum Group is a Nordic energy company and the leading supplier of biogas and processor of biodegradable waste fractions in the Nordic countries. Gasum is looking for solutions and partners to utilize the biogenic CO₂ generated as a side stream from biogas upgrading in the Gasum biogas plants in Finland and in Sweden. The aim of the Gasum Hackathon is to find partners with near commercial solutions and interest to take the lead to create value from the biogenic CO₂ produced by the Gasum Group's biogas plants in the Nordics.

What is it about?

Gasum promotes the circular economy by processing waste and producing biogas and recycled nutrients in Finland and Sweden. Gasum currently operates a network of nine biogas plants in Finland and seven biogas plants in Sweden. In addition Gasum has two biogas upgrading plants in Finland and one large biogas plant under construction in Götene, Sweden. Gasum's objective is to actively develop the Nordic gas ecosystem, and the company has many biogas plants projects on-going. By 2025, Gasum aims to make 4 TWh of biogas available through own production and certified European partners.

Gasum is now looking for solutions and partners to utilize biogenic CO₂ stream from upgraded biogas. Gasum is producing annually about 114,000 tons of biogenic CO₂ in the biogas upgrading process, of which 40,000 tons is in high concentration (approximately >95% CO₂), 64,000 tons is about 15% CO₂ concentration mixed with air, and about 10,000 tons in biogas currently not upgraded (Figure 1 and Tables 1 and 2).

The biogenic CO₂ from biogas upgrading is today released to atmosphere. It is not counted as emission and it is not causing additional costs for Gasum. The volume of high CO₂ per plant varies from 1,000 to 18,000 ton CO₂ per year in Gasum plants in operation (including Götene plant, starting operation in 2024) (Figure 1 and Tables 1 and 2). Hackathon participants can select a single Gasum CO₂ source, several source locations or combine different sites as they wish.

Gasum is especially looking for a partner (a company or a consortium) with near commercial solutions and interest to take the lead to create value from biogenic CO₂ produced by Gasum. Gasum appreciates if participant can show initial draft of business case for the idea of CO₂ use and value creation. With the winning team(s), depending on the maturity of idea and feasibility of the business case, Gasum is willing to continue with e.g. commercial negotiations and joint feasibility study/basic engineering.

#circulareconomy #biogas #biogasproduction #biogasplants #biogasupgrading #biogenic #carbondioxide #greencarbondioxide #sustainability #greentransition #industrialresidues

Welcome to solve the challenge!

Gasum

BioPaavo
by jamk

KASVU OPEN

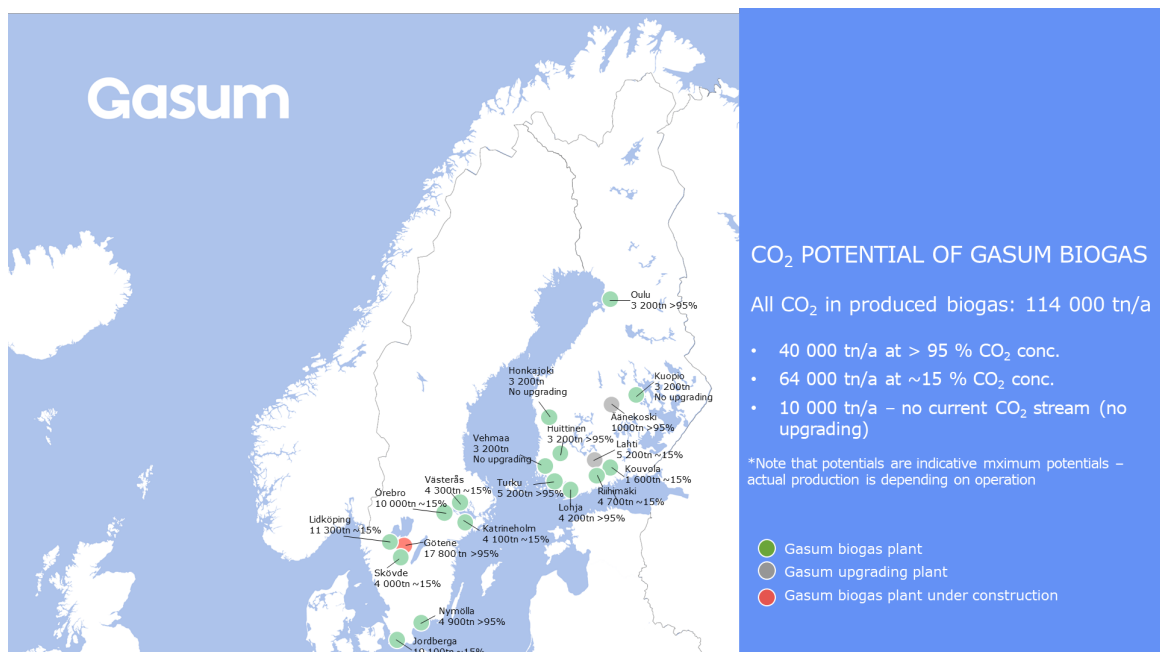


Figure 1. CO₂ potential of Gasum biogas plants in Finland and in Sweden.

Table 1. Current CO₂ potential in Gasum plants in operation and under construction (Götene plant in Sweden).

CURRENT CO₂ POTENTIAL IN GASUM PLANTS In operation + under construction (Götene)		
Sweden		Current methane prod
>95% CO ₂ concentration (membrane and amine scrubber)	tn CO ₂ /a	22 600
~15% CO ₂ concentration - water scrubber	tn CO ₂ /a	52 900
Finland		
>95% concentration (membrane and amine scrubber)	tn CO ₂ /a	16 900
~15% concentration - water scrubber	tn CO ₂ /a	11 600
Currently no upgrading	tn CO ₂ /a	9 500
TOTAL GASUM		
>95% CO ₂ concentration (membrane and amine scrubber)	tn CO ₂ /a	39 600
~15% CO ₂ concentration - water scrubber	tn CO ₂ /a	65 600
All Gasum CO ₂ from current upgrading	tn CO ₂ /a	104 100
All Gasum CO ₂ including raw biogas	tn CO ₂ /a	113 700

What is GasumHackathon?

BioEconomy Business Accelerator BioPaavo and Kasvu Open, in cooperation with Gasum Ltd., are opening a Hackathon that aims to find solutions and partners to utilize the biogenic CO₂ stream from upgraded biogas. Gasum is especially interested to find a partner (a company or a consortium) with near commercial solutions and interest to take the lead to create value from biogenic CO₂ produced by Gasum. Hackathon participants can select a single Gasum CO₂ source, several source locations or combine different sites as they wish.

Gasum Ltd. is a Nordic energy company and the leading supplier of biogas and processor of biodegradable waste fractions in the Nordic countries. Gasum promotes circular economy by processing waste and producing biogas and recycled nutrients in Finland and Sweden. Gasum is developing the Nordic gas ecosystem purposefully and responsibly. Gasum is building a gas filling station network that also serves heavy-duty vehicles in a sustained manner. Gasum imports natural gas to Finland and is the biggest distributor of liquefied natural gas (LNG) in the Nordic countries. Gasum is strengthening their position and infrastructure of LNG and supply LNG for maritime transport, industry and heavy-duty road transport in Finland, Sweden and Norway in accordance with the EU strategy for LNG. Gasum is one of the few companies who can offer biogas production and biogas availability on an industrial level in the Nordics. Gasum is continuously investing in new biogas plants and setting new standards for operations. By 2025, Gasum aims to make 4 TWh of biogas available through own production and certified European partners. Gasum can ensure local availability, as well as offer a bridge between LNG and LBG, to help you take the necessary steps towards carbon neutrality.

Participants

Hackathon is open to all interested parties: companies, research institutes, educational organizations and students, as well as other actors. Your team can be made up of representatives of your organization, or you can form a team that crosses organizational boundaries for this very challenge!

More detailed application guidelines and rules for participation:

<https://www.jamk.fi/sites/default/files/2022-12/Rules%20of%20participation%20Gasum%20Hackathon%20EN.pdf>

Jury

The Hackathon jury consists of representatives from Gasum Ltd., BioPaavo by JAMK, and representatives from 1-2 other expert organizations.

Why participate?

- You get to “acid test” your idea and receive instant feedback from a potential customer
- Find new business opportunities: You have the opportunity to build long-term business cooperation, get to pilot your solution and, if needed, to do product development cooperation with the sponsoring company.
- As a finalist, you will have access to the experts’ know-how and professional mentoring free-of-charge
- Get to network with other participants and experts

Timetable

- Publication of the challenge on **Tuesday, January 24, 2023, in webinar:**
<https://www.jamk.fi/en/event/biotalks-utilizing-biogenic-co2-from-biogas-plants>
- Submit your application describing briefly your idea and team by **March 5th, 2023** at the latest. In the preliminary proposal, we ask you to briefly describe your idea and the capability and the know-how of the team with which you will be involved in the challenge.
- The ideas and teams selected for the follow-up will be published by **March 10th, 2023**.
- The Kick-Off event will be held on **Wednesday March 29th, 2023**, 12 noon-4 p.m. EET when the participating teams will meet each other and representatives of the sponsoring company. At the kick-off event, representatives of Gasum Ltd. will tell the participating teams more about the challenge. The kick-off event will be organized as an online event.
- Hackathon Day is organized on **Wednesday April 19th, 2023** (full day event). At the end of the day the winning team(s) will be selected. You can participate in the Hackathon event either in Espoo or online.



Sign up!

Webropol form: <https://link.webropolsurveys.com/S/B80F3419720FE730>

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Organizer

BioPaavo by JAMK is a Bioeconomy Business Accelerator that aims to create new business and globally significant solutions to combat climate change in the international bioeconomy environment. BioPaavo's key tasks are to develop bioeconomy business and create sustainable business based on new innovations, utilizing new technologies and digitalization, developing abilities and know-how, and building business networks and ecosystems.

In collaboration with

KasvuOpen Ltd. is a nationwide sparring programme for growth companies. KasvuOpen's sparring process has been applied from the Growth Runway method developed by Mr. Marko Seppä, Professor of growth business operations at the University of Jyväskylä, and his team.

The Bioeconomy Business Accelerator for Saarijärvi project is implemented by the **Bioeconomy Institute of Jamk University of Applied Sciences** and is funded by the Regional Council of Central Finland with the support of the European Regional Development Fund, Sitra and the City of Saarijärvi.



Leverage from
the EU
2014–2020



SITRA

