



boost
nordic
biogas

NEWS



Mutual exchange & learning

In late August, the Interreg Aurora projects [Boost Nordic Biogas](#) and [Nature Refines](#) held joint meetings and a study tour. The meetings took place aboard the Umeå-Vaasa ferry, with a dinner in Umeå where participants exchanged knowledge about each other's initiatives. The second day featured study visits with reference groups and stakeholders, offering insights into recycled materials, nutrient management, algae cultivation, and fertilizers from digestate.



STRENGTHENING MUTUAL UNDERSTANDING

After a journey across Gulf of Bothnia and separate project meetings, participants from both projects came together for a joint dinner. There, they had the chance to deepen their understanding of each other's ongoing research and initiatives. Through discussions information, knowledge and insights were shared, paving the way for conversations about the future of circular systems and development of new innovative solutions.



Alejandro Grimm, Nature Refines, presents one of the work packages.

AUGUST 28 STUDY VISITS

UMEÅ ENERGY

Åsa Benckert, Senior Environmental Engineer at Umeå Energy, provided an overview of the company's evolution, starting from the installation of the first electric streetlights in 1892 to its current services, including district heating, broadband, electricity, and the electricity grid.

Our discussions covered topics such as for example achieving the EU Waste Hierarchy and various types of biomass, and also the use of ash as a byproduct. Åsa also outlined the company's upcoming investments. [Read about Umeå Energy here.](#)



Åsa Benckert, Umeå Energy, talks about future investments.

LULEÅ MILJÖRESURS [LUMIRE]

Björn Larsson and Torben Bauer from Luleå Miljöresurs AB opened with a discussion on the ongoing developments in Luleå and Luleå Industripark, highlighting the role of the Industrial Revolution in these changes.

They addressed the challenges and plans for future expansion, noting that the current demand for biogas far exceeds their production capacity, a situation shared by many biogas plants. Lumire is working diligently to increase supply through strategic planning and collaborations.



Torben Bauer and Björn Larsson, LUMIRE, discuss their ongoing journey.

With upcoming changes in EU legislation ([Clean Vehicle Directive](#)), there has been a gradual shift from biogas buses to electric buses. Despite this, biogas stays essential, and demand continues to rise. By the time biogas buses are retired, demand in other sectors is expected to increase significantly. But meeting these future needs requires substantial investments, a challenge recognized by other biogas producers who were involved in these discussions. [Read about LUMIRE here.](#)

ALGAE PILOT PLANT ON DÅVA

We also visited one of Sweden's pioneering large-scale pilot facilities for cultivating microalgae at Dåva in Umeå. This innovative project uses algae to treat industrial and municipal wastewater, reducing CO₂ emissions from the power plant, and produces biocomposites.

The algae grow rapidly in ponds filled with wastewater, where they absorb CO₂ from flue gases.



Participants learn about algae from Francesco Gentili, Nature Refines

Once harvested, the algae can be processed into biocomposites. Francesco Gentili, our speaker from SLU who is responsible for the project, highlighted algae's remarkable ability to tolerate high CO₂ levels and their potential for water purification and biomass production.

Beyond energy microalgae are also being explored for their applications in food, fertilizers, and bioplastics, showcasing their versatility as a valuable resource. [Read about the research here.](#)

VISITING AREVO

During our visit to Arevo, Mattias Holm, Head of Production, provided an insightful tour of their innovative concept and process regarding plant nutrient uptake.

This tour generated significant interest, especially among our Finnish and Norwegian participants, in the potential application of their solution using wastewater residuals.

Arevo, grounded in research from Sweden's Agricultural University (SLU) and based on Professor Torgny Näsholm's award-winning work, specializes in precision nutrient products and biostimulants that promote robust plant growth from seedlings to maturity.



Mattias Holm from Arevo shows where the product is produced.

Unlike traditional fertilization, Arevo's approach prioritizes root development. Their patented granules, which convert arginine into arginine phosphate crystals, ensure a slow and steady release of nutrients as the plant establishes itself. These granules are designed for easy application near the plant roots. [Read about Arevo here.](#)



Cecilia Palmborg, Boost Nordic Biogas presents cultivation trials.

EXPLORING ORGANIC FERTILIZERS

We also had a chance to visit the ongoing cultivation trials, part of the Boost Nordic Biogas project. Cecilia Palmborg, a senior researcher at SLU, explained that these trials aim to compare organic fertilizers from biogas plants (such as biofertilizers from Alviksgården and Härnösand, and sludge-based biochar) with traditional mineral fertilizers in the cultivation of spring wheat.

The goal is to assess the effectiveness of these circular fertilizers in reducing emissions and boosting regional self-sufficiency in food production. Moreover, the trials explore potential benefits like improving soil health and reducing heavy metal content in crops, contributing to a more sustainable and resilient agricultural system. [Read more about the trials here.](#)

DISCUSSION & EXPANDED KNOWLEDGE

The study visit offered participants a valuable opportunity to engage in meaningful dialogue, establish new connections, and pave the way for future collaborations. We also concluded the day with a summary workshop.

Key topics discussed throughout these two days were:

1. THE GREEN REVOLUTION IS HAPPENING

The green industrial revolution is unfolding, driven by global demand for sustainable solutions in the circular economy. Emerging industrial clusters are at the heart of this innovation. Success hinges on collaboration with stakeholders, especially biogas plants, to create a flexible system balancing gas and electricity needs.

2. BIOGAS AS A CORNERSTONE

Biogas has great potential, with a focus on boosting production and making the best use of byproducts. To seize this opportunity, we need forward-looking strategies: increasing biogas production, exploring new substrates from the northern region, and working with farmers to grow energy crops and produce biohydrogen. We also aim to use byproducts for example wastewater treatment, agriculture, forestry, and biogas production to innovate in crop and food production.

3. IDEAS ON HOW TO UTILIZE SLUDGE

We recognize the importance of managing sewage sludge responsibly and sustainably. In the North, with unique environmental conditions, we are exploring ways to utilize sludge, including producing biochar and activated carbon. These efforts align with our broader commitment to regional recycling, nutrient recovery, and preparation for upcoming legislation.



Happy participants heading back from the cultivation trials.

FORGING A NEW PATH FOR COLLABORATION

The use of biochar and activated carbon additives shows great promise for improving process efficiency. Sharing experiences, learning from ongoing innovations, and working together has never been more crucial in shaping a sustainable future. Over these two days, one thing was clear: our collective efforts reflect a commitment to meeting today's demands while preparing for future challenges and opportunities.

To fully unlock this potential, improved legislation as soon as possible is needed to support the rapidly growing market. Embracing and creating innovative approaches to turn waste into valuable resources is important.

Economic collaboration and joint projects are key to driving market growth forward. Strengthening cross-sector cooperation and establishing a shared vision will ensure continued progress. Meeting, collaborating, and exchanging ideas are vital for moving forward, with dialogue and testing as essential drivers of success.



Participants actively discuss lessons learned and the future to come.

JOIN OUR JOURNEY!

While waiting for more of our results, please visit our previous project [Bothnia Nutrient Recycling](#). And read more about [Boost Nordic Biogas](#) and [Nature Refines](#).

If you have not already signed up for Boost Nordic Biogas newsletter please do and spread the word here: [Sign up for our newsletter](#).

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