NATURE REFINES NEWS

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Cooperation and mutual learning

Two projects funded by Interreg Aurora, Boost Nordic Biogas and Nature Refines, organized a joint study tour and project meetings in late August. After a journey across the Kvarken and separate project meetings, participants from both projects came together for a joint dinner. This served as an opportunity to deepen our understanding of each other's ongoing research and initiatives. The second day was dedicated to study visits with invited reference groups and other interested stakeholders. The event offered an excellent opportunity to deepen our knowledge, expand our networks, and exchange experiences.

DAY 1 PROJECT WORK

Nature Refines

Nature Refines partners representing; SLU, LTU, Novia UAS and BioFuel Region

The project is focusing on organic residues as raw material for water-cleaning and energy storage devices

The aim is to contribute to a circular society by finding new ways to recycle residues that today represent an environmental problem and a cost for companies. We will use organic residues to produce activated carbon. This will be added to the biogas process, used to clean water and become a component in electrodes. Carbon regeneration possibilitiess are tested.

Project presentations

Alejandro Grimm, project leader Nature Refines, presents activitated carbon produced using biomass residues and how it is used for constrution of electrodes.

Boost Nordic Biogas focuses on cross-border collaboration and reducing the gap between research and production to develop the biogas production.

DAY 2 STUDY VISITS

Umeå Energy

Åsa Benckert, Senior environmental engineer from Umeå Energy

We heard about the history of the municipal energy company from the first electric 1892 streetlights towards todays services: district heating, broadband, electricity, and electricity grid. We discussed how to achieve the EU Waste Hierarchy, different biomasses and the use of the ash as fertilizer. Åsa also presented upcoming investments.

Algae Pilot at Dåva

Francesco Gentili from Nature Refines

Algae is cultivated in a set of raceway ponds at the Umeå Energy CHP-plant and used by SLU. This system is used to test removal of Co_2 from flue gases, and nutrients from wastewater obtained from VAKIN (municipal waste-water company). The system demonstrated to have a pollutant removal efficiency up to 99%. The algae harvested from this facility is being tested for production of biochar at SLU. Reseachers from Nature Refines, in Novia UAS, Finland, are testing if biochar and activated biochar can improve biogas production processes.

Biogas - Luleå Miljöresurs, LUMIRE

Björn Larsson from Luleå Miljöresurs, one of the biogas plants active in Boost Nordic Biogas

Björn Larsson and Torben Bauer 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 to increase supply through strategic planning and collaborations. One strategy is to use the energy to run buses for 12-15 years. By the time biogas buses are retired, demand in other sectors is expected to increase significantly. Meeting these future needs will require substantial investments, a challenge recognized by other biogas producers involved in the discussion.

Nutrition products and biostimulants - AREVO

Exampels of products from Arevo

Mattias Holmlund, Head of Production, provided an insightful tour of their innovative concept and process. Arevo, grounded in research from Sweden's Agricultural University (SLU), specializes in precision nutrition products and biostimulants that promote robust plant growth from seedlings to maturity.

Unlike traditional fertilization, Arevo's approach prioritizes root development. Their patented granules, ensure a slow and steady release of nutrients as the plant establishes itself. These granules are designed for easy application near the plant roots during planting, making them an innovative solution in sustainable agriculture. This visit generated significant interest, especially among our Finnish and Norwegian participants, in the potential application of their solution using wastewater residuals.

Cultivation trials - Röbäcksdalen, SLU

Cecilia Palmborg, SLU, Boost Nordic Biogas

Cecilia Palmborg explained that the ailm of the trials is to compare organic fertilizers from biogas plants—such as biofertilizers from Alviksgården and Härnösand, as well as sludge-based biochar—with traditional mineral fertilizers in the cultivation of spring wheat. Spanning over three years, the goal is to assess the effectiveness of these circular fertilizers in reducing emissions and boosting regional self-sufficiency in food production. The trials also 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!

Expanded Knowledge & Exchange of Experiences

The study visit provided a platform for participants to engage in meaningful dialogue, meet new connections, and lay the groundwork for future collaborations. Before concluding the day, we hosted a workshop where participants shared reflections and discussed key topics.

One discussion was how we can use the nutrients from the biogas production, especially the sewage sludge. An important question is how to increase the acceptance and with that increase our self-sufficiency of fertilzers.

A general discussion about future projects was initiated, based on what needs to be done. It was an opportunity for participants from two different projects to take part in each other's reflections and an opportunity to ask questions.

READ MORE:

Nature Refines

Boost Nordic Biogas

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Aurora
Nature Refines
REGION NORRBOTTEN
Kempestiftelserna
SLU
NOVIA UNIVERSITY OF APPLIED SCIENCES
BioFuel Region
REGIONAL COUNCIL OF LAPLAND