

SKELLEFTEÅ KRAFT HACKATHON

Track the stack

Are you an expert in finding innovative solutions to tricky questions and believe that the new digital technology can solve problems in a whole new way? At Skellefteå Kraft, the fifth largest energy company in Sweden, we embrace new technology and innovative sustainable business solutions to improve our business. Like most companies, we strive to become better at using the opportunities of digitalization.

Our challenge:

How can we improve our methods to get accurate, quality assured and up-to-date physical and geometric data on the biomass piles into digital format? How can we get alerts about important or dangerous changes in and around the piles?

The winners of this Hackathon will get a chance at either business collaboration in the form of a joint Proof of Concept (POC), open doors to joint projects, or pilot ventures to bring your visionary ideas to life.

Your creativity and passion are the key to the solution, and we invite you to be part of this unique opportunity to tackle our challenge. Together with Skellefteå Kraft's experts and the BioBoosters network, you will have the chance to develop innovative methods and solutions. Are you the one who solves the challenge?

What is it about?

The district heating that Skellefteå Kraft delivers to people and companies in the city of Skellefteå is vital because the winters are long and sometimes very harsh. The raw material used to provide the heat is mainly forest-based residues and about 500,000 tonnes of biomass are handled each year. The biomass is delivered continuously during the year and the largest volume at the site is in August. The different assortments are stored separately in piles.

New climate and environmental policies, new industries competing for green carbon and the war in Ukraine have a major impact on the supply and price of bio-based raw materials.

This will affect the available amounts of biomaterials, which products and raw materials are considered renewable and sustainable, resulting in an increased need for efficient management of biomass.

Our challenge,

How can we improve our methods to get accurate, quality assured and up-to-date physical and geometric data on the biomass piles into digital format? How can we get alerts about important or dangerous changes in and around the piles?

Data on our biomass piles is currently collected partly manually, and partly via automated systems, depending on the parameter. The collected data is used to calculate the energy value of the biomass, inventory balance, deliveries and keep track on location.

The results are stored in various computer systems and in a number of self-programmed excel data sheets. Some data is entered manually, and others are imported directly from the measuring equipment.

Skellefteå Kraft's heating department currently has challenges in ensuring quality and traceability of data at several stages. Through modernised metering, we want to get better follow-up and control of energy statistics and inventory. There is also a need to convert some manual measurements to online measurement for better control and operational optimization. Fiber and LORA network are available at the site.

We now need help with how we can collect and digitize data about our biomass piles from gate to use. The data should be easily exportable to a SQL database and be compatible with our control systems' existing protocols. The solution must be cost-effective, robust, secure, future-proof, traceable and ensure the right quality of the data.

Relevant facts are weight, moisture, volume, degree of compaction/density, fraction size, level of impurity and geographical location. Alarms should prevent fire or unauthorized access.

Welcome to solve the challenge!

To effectively address our challenges, we are looking for participants from a variety of companies and institutions. We are mainly looking for collaborations with companies close to the market and solutions that are feasible and that can be applied in our operations. We are aware that the challenge might need a combination of several solutions, and we welcome both holistic solutions and solutions to parts of the challenge.

#digitalisation, #efficiency, #ai, #screening, #biomass, #InternetofThings

Criteria for evaluation

Ideas and solutions are evaluated based on their feasibility, technical maturity level (TRL) and cost. Creativity, sustainability and business potential will also be evaluated.

Upcoming procurement

Once this process is complete and we have a result from our Hackathon, the results of the feasibility study will be made public. Likewise, our POC will be presented. Nothing connected to business confidentiality will be disclosed - such as drawings, technology, code, sensors, datasets, systems or business models.

After the results are notified, the ambition is to start one or more procurements to realize and acquire the proposed solution or equivalent.

About Skellefteå Kraft

Skellefteå Kraft is a municipally owned energy company, the fifth largest in Sweden. The mission is to secure the municipality's energy supply and offer a well-developed infrastructure for electronic communication. Skellefteå Kraft produces, sells and delivers energy and energy-related products and services.

The district heating department supplies heating, cooling and electricity to 7,500 connections, of which 40,000 are households as well as premises and industries in Västerbotten County. In one year, we produce 800 GWh of heat and 160 GWh of electricity from almost 70 production units. In addition, we supply 4 GWh of cooling from the river. The largest production unit, Hedensbyn, is located just outside Skellefteå. The main fuel supply is wood by-products from sawmills and pulp industry, some of which is processed into wood pellets. In total, we handle about 500,000 tonnes of raw material each year, of which 75 per cent is handled at Hedensbyn. See picture of the biomass pile site below.

Skellefteå Kraft Värme aims to improve its results in:

- To have a robust and accurate system for energy value and stock balance.
- Have efficient and safe fuel management.
- Ensure fuel quality and optimize fuel recipes depending on availability.
- Comply with policies and laws regarding renewable energy, traceability and DDS (due diligence system).

[Read more](#)

Participant

The hackathon is open to all interested teams: companies, research institutes, educational organisations and other actors. Your team can also consist of collaboration between multiple organizations.

The hackathon is international and the working language is English.

Participation in the hackathon is free. We will also offer reimbursement of travel expenses to teams from any of the EU countries, including EES. Travel tickets up to 800 Euro per team, cheapest choice and maximum 2 people/team.

Participants and their proposed solutions may be subject to security clearance.

[Read more about the rules here](#)

Jury

The jury consists of representatives of Skellefteå Kraft with the support of the organizer's representatives.

Why should I participate?

As a finalist, you will have the opportunity to:

- Establish cooperation and networking with other companies and specialists with an interest in the same field.
- Launch your idea with direct feedback from a potential customer and discover how you can adapt your solution idea to the needs of your end users.
- Develop the commercialization potential of your idea and discover new business opportunities with the support of expert mentors.
- Gain international recognition and visibility for your team's expertise.

The winners of this Hackathon will get a chance at either business collaboration in the form of a joint Proof of Concept (POC), open doors to joint projects, or pilot ventures to bring your visionary ideas to life.

Timetable

2024.09.30, 13:00 CEST: Publication of the challenge in a [launch webinar](#).

2024.10.30, 23:59 CEST: Deadline for submitting an application

2024.11.13 : Selection of teams published

2024.11.20, 09:00 CEST: In the Kick-off, the participating teams will meet each other and representatives from Skellefteå Kraft to hear more about the challenge and the expectations on them. The teams will present their preliminary ideas and receive feedback for further development.

2024.12.11-12: Hackathon Days, will be organized in Skellefteå. The program includes mentoring for the participating teams as well as a pitching session for presentations of the teams' solution proposals to Skellefteå Kraft. After the jury's deliberations, the winner(s) will be announced at the end of the day. It is possible to participate online if you are unable to travel on site.

More information

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APPLY HERE

Organizer

BioFuel Region is a non-profit member-owned company with a mission to enable and facilitate the transition to a viable bioeconomy and a fossil-free vehicle fleet in northern Sweden. We do this by channelling and coordinating creative projects, collaborating with the public sector, business and the research and development sectors, and by influencing policy issues at regional, national and EU level.

In collaboration with

JAMK University of Applied Sciences has extensive experience in organizing hackathons. BioBoosters by Jamk is a business accelerator that inspires and supports companies to create new business and develop globally significant solutions to combat the challenges posed by climate change. BioBooster's core task is to promote business activities focused on the bioeconomy and agritech, create sustainable innovations, utilise digitalisation, develop expertise and strengthen business networks.

BioBooster's project network supports the Skellefteå Kraft Hackathon through communication and marketing collaboration. The network consists of 9 prominent bioeconomy innovation hubs around the Baltic Sea – from Finland, Sweden, Germany, Estonia, Latvia, Lithuania and Poland.

The BioBoosters project will organize a total of 18 Hackathons to support the sustainability mission of bioeconomy companies. The BioBoosters project is co-financed through the Interreg BSR programme and the European Regional Development Fund.

[BioBoosters LinkedIn page](#)

[BioBoosters project page](#)



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