LUP

The Supplier Development Programme

Innovative Procurements

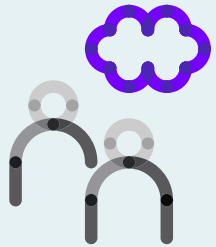
LUP ensures that companies and public agencies together solve the challenges of the future

Innovative procurements in Norway

In Norway, public agencies procure goods and services for 65 billion euros every year.

Innovative procurements is a new method for public procurements. In Innovative procurements requesting pre-defined solutions from the market is discouraged. Instead, needs and functions are communicated to the market, which in turn responds on how to best solve this.

Through Innovative procurements, mapping and defining needs are emphasized, the market is invited for dialogue, and challenged to come up with smart solutions.



The Supplier Development Programme (LUP)

LUP ensures that companies and public agencies together solve the challenges of the future.

The Supplier Development Programme (LUP) helps municipalities, county authorities and state agencies carry out innovative procurement and LUP mobilizes suppliers and start-ups to deliver better solutions. LUP are experts in how to carry out innovative procurements from start to finish.

LUP was established by The Norwegian Confederation of Business and Industry (NHO) and the Norwegian Association of Local and Regional Authorities (KS). Innovation Norway and The Research Council of Norway joined in 2018. LUP has 35 public partners including government agencies, counties and municipalites. Together we work towards an increased use of innovative procurements.

LUP has 14 employees and innovation brokers who cover the whole country. LUP has its head office in Oslo and a regional presence in Tromsø, Trondheim, Stavanger, Drammen and Moelv.

Since 2010, LUP has assisted municipalites and government agencies in 239 innovative procurements and developed the method for innovative public procurement. On our webpage you can find 51 innovative solutions that has been delveoped through the innovative procurements where we have assisted. LUP's method for innovative public procurement helps to bring Norway closer to **sustainability goals 9, 13 and 17.**

145

LUP worked with 145 different public agencies and municipalities in innovative procurements in 2023

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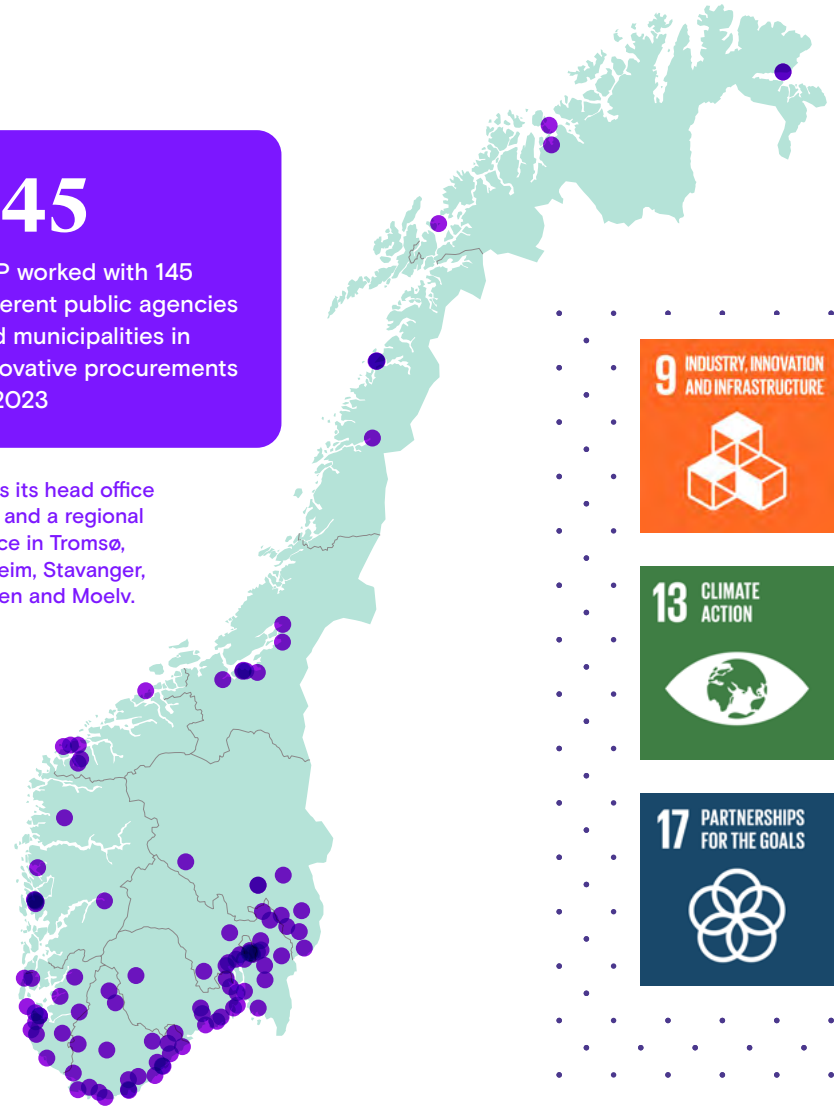

Procurement: Autoscore - measurement of vital parameters in emergency departments

- **Lead procurer:** St. Olavs hospital, Trondheim University Hospital
- **Buyers group:** Malvik municipality, University Hospital of Northern Norway (UNN), Norwegian Hospital Procurement Trust

St. Olavs hospital needed a solution that could monitor patients' vital measurements without connected monitoring equipment on the body. Some of the challenges with the current method of patient monitoring are that it is time-consuming to connect the equipment and cables, the patient has less freedom of movement and healthcare workers have to juggle different sources of information.

Current practice entails a high cognitive load for health workers, and can be challenging to implement in demanding patient groups, for example those with mental disorders. In addition, today's measurements are carried out at intervals of 1-12 hours, which makes it difficult to detect deterioration in the patient's condition between measurements.

St. Olavs hospital HF entered into an innovation partnership with Vitalthings and subcontractor DNV Imatis in 2022. The project received 10 million in support from Innovation Norway. After 18 months of development, the project was completed in 2023.

Solution: Contactless measurement of breathing and heart rate

Companies: Vitalthings and DNV Imatis

The world's first non-contact patient monitor can measure breathing rate and heart rate completely without the use of a camera or sensors attached to the patient. Using broadband radar (UWB), the patient monitor sends out a stream of waves that pick up microscopic movements on the patient. The patient can lie under the duvet, wear a down jacket or lie on his stomach, without this affecting the quality of the signals sent back to the monitor.

Vitalthings uses signal processing to convert the data stream into respiration rate, respiration pattern and heart rate. Both the active monitoring and the history that is compiled can be used to uncover underlying patterns and signs of negative development. The monitor comes in two variants: One is a mobile version that can be rolled across the floor on wheels, while the other is stationary and can be mounted on the wall or ceiling.

The technology company DNV Imatis has developed the mobile application that enables hospital staff to monitor the patient from a distance. In the app, employees receive continuous data from the patient monitor, and they can see the trend history of breathing and heart rate from the last three days. If they receive an alarm, they can acknowledge and handle the alarm directly from the phone.

Benefits:

- Deterioration in the patient's condition is detected earlier.
- Reduced length of stay and lower volumes in the intensive care units result in better operating economics.
- The health workers saves time not having to connect equipment to the patient and sterilizing equipment afterwards
- Continuous overview of all patients in the department.

Procurement: Circular solutions for handling used articial grass

- **Procedure:** Plan and design competition
- **Lead procurers:** Trøndelag county authority
- **Buyers group:** Bodø municipality, Bærum municipality, Fredrikstad municipality, Lillestrøm municipality, Nordre Follo municipality, Rana municipality, Sandnes municipality, Stavanger municipality, Trondheim municipality, Viken county authority, Norwegian Waste Management and Recycling Association, Vestland county authority, KG2021 – NTNU, the Norwegian Football Association, Lørenskog municipality, Oslo municipality, Tromsø municipality and Bergen municipality

As of today, there are few or no all-Norwegian circular solutions for disposing of artificial grass. There is a need and business potential for sustainable solutions. The plan and design competition was carried out by Trøndelag county authority and closely followed by 20 other public agencies. They all have the same goal of challenging the supplier market to develop new solutions.

There are 1,700 football pitches with artificial grass in Norway. In addition, artificial grass is used in other areas such as parks and facilities for other sports. Around 50 pitches are rehabilitated or replaced annually, but the need will increase in the coming years. Because of the costs and lack of solutions, there are challenges in disposing the artificial turf in an environmental friendly way.

Solution: Sort and recycle locally

Company: Green Recycling

A normal grass pitch can be used up to 250 hours per year, which equates to around forty minutes every day over the course of a year. In comparison, an artificial grass pitch can be used up to 2,500 hours per year, corresponding to almost seven hours every day. Artificial grass pitches have a lifespan of around eight to twelve years depending on how much it is used.

When the time has come to replace the old pitch, the only legal solution until now has been to send the artificial grass to a recycling facility in Denmark. This is expensive and also results in large emissions of greenhouse gases from transport.

Reuse of the materials in artificial grass provides much greater savings than transporting it all the way to Denmark. Therefore, Green Recycling has entered into a cooperation agreement with a local recycling center in Rogaland. They start by cutting up and rolling up the track before it is driven into the facility for drying. After it is dried it they grind it up and sort the fractions: sand, granules and fiber that sit in the cloth. Half of the tracks are sand, and track owners will buy this for reuse.

Rubber granules are recycled car tyres, and have traditionally been the best and cheapest solution for pitch owners. The problem is that the small granules get stuck in shoes and clothes, littering nature. Green Recycling today sends the granulate for energy recovery as old granulate is not suitable for reuse.

Benefits:

- Less emissions from heavy transport when everything is handled locally.
- Sand and grass fiber are reused.
- Rubber granules and plastic go to energy recovery.
- Energy recovery locally keeps all materials in a national cycle.

Procurement: Mobile energy for an emission-free construction site

- **Procedure:** Research and development contract
- **Actors:** Skagerak Energi AS, Porsgrunn municipality, Skien municipality, Nasta, Litra, Kverneland Energy

During the joint initiative " Emission-free construction sites ", a need for steady and sufficient electricity for construction and construction sites was uncovered. Construction machines require a lot of electricity, and to accommodate this, the developer must either expand the capacity of the power grid, or use a temporary solution.

Skagerak Energi AS wanted to solve the challenge by developing mobile batteries, and in 2021 the research and development project (R&D) received NOK 13 million in support from Enova. Skagerak Energi has covered the rest of the cost, which amounts to approximately sixty percent.

Partners in the project are Porsgrunn and Skien municipality, Nasta, which ensures that the projects have access to electrical machines, Litra, which is responsible for logistics and transport, and Kverneland Energi, as technology supplier.

Skagerak Energi and Circle K Norge has teamed up to supply mobile battery containers to construction sites all over Norway. When the battery containers run out, they collect, charge and return them. In this way, the goal of emission-free construction sites will finally be achievable all over Norway.

Solution: Mobile energy

The solution is simple, and solves a fundamental problem that all emission-free building and construction sites have: the power grid in the vast majority of places does not have enough capacity for both construction power and heavy electrical construction machinery. The client and contractor must therefore pay a construction contribution to build out new power cables and connection points that will not be used after the end of the construction period.

The solution consists of three components: A charging platform, battery containers and charging containers. Skagerak Energi's technology partner Kverneland Energi has produced the batteries.

Each battery container has a capacity of 576 kilowatt hours, and can charge an electric machine with 360 kilowatts per outlet. Two batteries can be connected together to increase the capacity, which will correspond to the monthly consumption of a 120 square meter apartment.

It is an off-grid solution and depending on the size of the machine, five to ten construction machines can be fully charged on one battery container. The aim is that the effect should be good enough for one machine to be fully charged during the lunch break - a doubling of today's effect.

Benefits from to testing projects in Skien municipality:

- No costs for building out power grids and new connection points.
- Total energy delivery of 33,200 kWh, divided into 65 charges.
- 9,329 liters of diesel saved.
- Reduced CO_2 emissions by 24 tonnes, which is equivalent to the emissions of 14 diesel cars in one year.

Innovative procurement is one of Norway's most powerful engines for innovation and sustainable change

LUP

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