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CAMPUS EVENSTAD, STOR-ELVDAL MUNICIPALITY SHOWCASE FOR FUTURE BUILDING PROJECTS IN NORWAY

Sector: Renewable energy: sun,
geothermal, biomass, energy efficiency

Timeframe: 2010 – 2020

Location: Stor-Elvdal, Hedmark, Norway



PROJECT BACKGROUND

Statsbygg is the Norwegian government's key advisor in construction and property affairs, building commissioner, property manager and property developer, often in close cooperation with local and regional authorities. Statsbygg has a strong environmental focus regarding Norwegian public buildings. Their contribution include www.klimagassregnskap.no, a free, web-based tool to calculate life cycle carbon footprint for building and construction projects. Statsbygg's long term goal is zero emissions; and 30 percent emission reduction from new buildings already by 2018.

Faculty of Applied Ecology and Agricultural Sciences at Hedmark University of Applied Sciences is located at Campus Evenstad. Statsbygg (building owner), cooperating with the University and local authorities, is now running one of the most innovative environmental projects in Norway.

PROJECT DESCRIPTION

Campus Evenstad has 250 students and 6000 square meter building area. The campus is now also developed to be a centre for renewable energy knowledge.

Multipurpose building "barn" has received an

extensive renovation, with Norway's second largest solar plant on the roof. 276 photovoltaic modules produce a total of approx. 60,000 kWh annually.

The oil based energy centre is replaced with 300 kW pellets (biomass) boiler, delivering hot water to a 5000-liter storage tank supplying heating and domestic hot water. An electrical boiler (315 kW) delivers peak load on the coldest days. Biofuel via the district heating covers at least 80% of the heating demand, the rest is covered by electricity.

Old buildings, responsible for 40% of the energy use, are now replaced or renovated. A 4000 m² dormitory for 120 students is located in a new, module based building with passive energy standard. Sun energy collectors on the roof deliver domestic hot water.

The renovated administration building includes major environmental ambitions, with life cycle zero emission. Carbon emissions from production of materials, construction, operation and maintenance shall be compensated by production of local, renewable energy. Extensive use of wood in addition to reuse and recycling will give further reduction in carbon footprint.

PROJECT RESULTS

With the photovoltaic plant, the campus annually



saves about 18 tonnes of CO₂ and reduces power consumption from grid by 5%. Complete installed cost for is about 100,000 EUR. The plant contributed to improving the energy label of the building and gave experience with the installation and operation of photovoltaic plants.

The use of pellets as energy source is carbon neutral, because CO₂ released by burning wood is equivalent to the amount of CO₂ tied up in the tree's growth phase. In addition, using pellets is an energy efficient choice, due to high energy content and low moisture. This kind of plant needs less maintenance compared to other solutions based on biomass.

The new dormitory gives less use of energy for heating, and the sun collectors on the roof reduce energy use for domestic hot water.

In addition to the environmental gains, the campus – especially the ambitious administration building – will have an important educational function, both for the students and for visitors.

MORE INFORMATION

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Online data on sun energy production:

www.sunnyportal.com/Templates/PublicPageOverview.aspx?page=aa73fe7d-ob27-4b4a-86b8-7055513049a4&plant=225ab166-58fb-4816-8fao-9e34e7377b3d&splang=en-GB

