BIOMASS SOLUTIONS FOR DE-CARBONIZING YOUR CAMPUS WITH DISTRICT HEATING

Speaker: Claus Mikael Larsen, Linka Energy A/S
Climate changes are affecting our way of life, and we all need to reduce our carbon footprint to stop this.

Many North American campuses are looking to implement new energy systems, but face challenges when choosing the right energy source.

It’s a jungle out there… How does one decide?
There are many solutions, all with their own benefits and disadvantages. Investing in renewable energy systems is too expensive, too unreliable or just too impractical - or is it?
Biomass provides more cost-efficient and sustainable energy than any other renewable energy source.

- Already here and available
  - regardless of how we use it

- Reduces the amount of waste in our society
  - the entire crop is used

- Local supply = stronger local economy
  - can sustain or even create new jobs
SOLUTION

+ Can often be installed in existing boiler room
  - no changes to the infrastructure or surrounding environment

+ None, or very little, nuisance to the local community
  - other energy sources can cause noise interference or visual nuisance

+ Higher flexibility
  - combination of different biofuels, e.g. combined straw and pellet combustion, with easy switch depending on price and availability

+ Can be combined with other energy sources
  - such as solar panels and heating pumps
IS BIOMASS REALLY CO₂ NEUTRAL?

Local farmer grows crops

Farmer spreads ash onto field

Heating plant burns biomass

Campus is heated and powered
IS BIOMASS REALLY CO₂ NEUTRAL?

Residue products from harvesting would otherwise emit CO₂ while rotting in the field.

The CO₂ emitted during combustion is absorbed by the new biomass growth.

Local farmer grows crops.

Ash from the combustion acts as a natural fertilizer for the new growth.

The CO₂ emitted during combustion is absorbed by the new biomass growth.

Heat and power is provided even if the sun doesn’t shine and the wind doesn’t blow.

Campus is heated and powered.

Residue products from harvesting would otherwise emit CO₂ while rotting in the field.

Ash from the combustion acts as a natural fertilizer for the new growth.

Farmers spread ash onto field.
Camp Rusta-Heggelia (military base)
Bardufoss, Norway

The wood chip plant supplies heating for barracks and office buildings, all dependent on heat, as temperatures in the area can drop below -40°F.

Plant specifications:
- Installation year: 2017
- Fuel: Wood chips
- Energy: Heating
- Boiler size: 14.7 Mbtu
CASE STUDY: CAMP RUSTA-HEGGELIA

Designed for burning wood chips with up to 40 % water

→ Tiles are mounted inside to keep temperature in firebox high for evaporation of water in fuel

The camp has an annual heating consumption of 64,830 MBtu/h, and the plant will burn 21,860 m³ of wood chips every year.

Storage with a scraper unit is built next to the boiler room. The automatic feeding system ensures a constant, steady fuel feed.
CASE STUDY: CAMP RUSTA-HEGGELIA

Before
→ Electric boiler
→ Oil boiler

Financial savings for the customer
→ About 30 %

CO₂ reduction
→ About 4.400 ton
Questions for the speaker?
THANK YOU!

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