

Heat pumps utilising seawater

Heat pumps utilise seawater as an energy source and provide more climate-friendly district heating.

District heating must keep up with the green transition along with supplying our growing city. Therefore, Waste & District Heating Aarhus, owned by the municipality, has introduced heat pumps utilizing seawater to produce district heating.

NEW GREEN TECHNOLOGY

The heat pumps are an innovation and development project as it is new to have large-scale heat pumps in a central cogeneration area. In particular, the technology in the seawater heat pumps is unique, also internationally, as seawater is fed directly into the evaporator of the heat pump and boiled at +5 degrees under vacuum. Therefore, unlike others, the heat pump does not need any coolant, which otherwise is known for its negative climate impact. During times of low electricity prices, the heat pumps will provide significant savings compared to a biomass-produced heat supply.

FINANCING

The construction costs of the heat pumps were approximately DKK 74 million. Of those, DKK 3 million are EU funding. They have been installed in a new building, which also houses a heat exchanger (DKK 54 million). In addition to that, a transmission line was laid (DKK 44 million).

Watch a presentation video [HERE](#).



Source: AffaldVarme Aarhus

FACTS:

- Each heat pump can produce 4.0 MWh of heat per MWh of electricity it uses
- Heat exchanger: 37,5 MW
- The facility currently has two 1MW seawater heat pumps, but can be expanded to up to 12MW.
- When started, the seawater heat pumps can deliver heat within 30 minutes
- In the facility you will also find an exhibition about district heating

PARTNERS:

Advisor	COWI
Architect	Arkikon
Building contractor	EMR Murer & Entreprenør A/S
Engineering contractor	Eurocon Rør & Svejs Aps
Heat pumps	Johnson Controls & Technological Institute

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