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## **New framework agreement lays the foundation for geothermal energy in metropolitan Copenhagen**

**Amidst a troublesome European energy crisis where many countries and players are forced to return to fossil fuels, there are some good news about renewable energy from Denmark. The district heating companies in the Copenhagen metropolitan area have come to an agreement with the company Innargi about a framework for a possible breakthrough for geothermal energy in our metropolis. The potential in this area corresponds to the consumption of somewhere between 35,000 to 75,000 households.**

A detailed plan with a timeframe as well as possible locations for the plants could be ready in about a year. If a final agreement can be made, and if everything goes as hoped, we expect the first of several geothermal plants to be ready for district heating in metropolitan Copenhagen in 2026 at a competitive price.

### **Part of a multistranded strategy**

In short, Innargi will get the hot water out of the ground while the companies VEKS, CTR, and HOFOR will buy the heat from the water and send it out through the district heating network. To begin with, the parties involved have signed a letter of intent which describes the intention to work actively and purposefully towards establishing geothermal energy in metropolitan Copenhagen. The future of district heating is based on a multistranded strategy where several different green energy sources work in conjunction with each other, and geothermal energy could be an important part of such a system.

### **Great with local energy**

Aarhus led the way, and together with Innargi, which is owned by A.P. Moller, ATP, and NRGI, they are planning to build a plant that can produce 110 MW corresponding to the heating of 36,000 households. Now, the capital area is following in their footsteps. Initially, a potential of 120 to 240 MW is expected, which can cover the yearly heating of 35, to 75,000 households.

*“It is great that we have closed on the first phase. If we agree to establish a geothermal energy plant in VEKS’ area of supply, there is good reason to be satisfied. In a time where supply safety and stable energy prices are of the highest priority for VEKS, it is important that we can connect another green energy source to the district heating network. That it is a local energy source which is available 24/7/365 only makes utilizing geothermal energy that much more interesting”,* says Lars Gullev, CEO in the district heating company VEKS.

### **On the way to a 100-pct. green district heating network**

*“We hope that we are moving towards a breakthrough for geothermal energy in the Copenhagen metropolitan area. It is definitely needed. The entire concept behind geothermal energy is just so obviously right. For a long time, we have worked to make this green energy source gain some momentum, and it has been one bumpy ride. The partnership with Innargi adds new competence, and it is a good step in the right direction. If it succeeds, we are fully on the way to a 100-pct. green district heating network in metropolitan Copenhagen. Although, it does depend on if we can get the necessary space”,* says Kamma Eilschou Holm, CEO in CTR, Metropolitan Copenhagen Heating Transmission.

In HOFOR, the chairman of the board Susanne Juhl remarks, among other things, upon the timing: *“The current European energy crisis triggered by the invasion of Ukraine has shown us that the European energy sector is more vulnerable than we thought. Luckily, the district heating network in*



*metropolitan Copenhagen has shown itself to be more robust. However, we still need to tug on many different green strands in the future, and this is where geothermal energy can be a vital element”.*

Geothermal energy consists of the heat coming from the centre of the earth. One to three kilometres into the Danish subsurface exists many pockets of 30-80°C hot geothermal water which, through deep drilling, can be pumped up to the surface so that the heat can be transferred to the water in the district heating network in a closed cycle. Afterwards, the geothermal water is pumped back into the ground. Depending on the temperature of the geothermal water, it might be necessary to install a big heat pump in order to reach the temperature needed for the district heating network.

The energy potential of geothermal energy is very great, but reaching this potential depends on the conditions in the subsurface (sufficient flow and temperature) as well as the available surface area in vicinity of the district heating network. It is generally a big obstacle to find space for technical plants in urban areas.

### **Metropolitan Copenhagen can pull others in the same direction**

At Innargi who is responsible for the construction and operation of the geothermal plants for the district heating companies, the CEO Samir Abboud says: *“We are very happy, as it looks like we will get a breakthrough for geothermal energy in metropolitan Copenhagen. First and foremost, this means even more green, stable in price district heating for a great many customers. But the geothermal energy project in metropolitan Copenhagen will also make geothermal energy an attractive source of energy for many medium sized district heating companies nearby where isolated geothermal energy projects are too expensive. Those projects will benefit economically if they are established in connection with the bigger project in metropolitan Copenhagen”.*

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### **About the parties involved**

**CTR** is a supplier of sustainable and connected heating in the metropolitan Copenhagen area – across the municipalities of Frederiksberg, Gentofte, Gladsaxe, Copenhagen, and Tårnby. CTR has a yearly turnover of almost 2.5 billion DKK. and has about 35 employees. Through the distributional companies, CTR supplies about 250,000 households with district heating in metropolitan Copenhagen.

**VEKS** supplies surplus heat from big, central power and waste-to-energy plants to 20 local district heating companies corresponding to the consumption of 170,000 families. Additionally, VEKS is expanding district heating in Køge to 7000 new customers.

**HOFOR** is Denmark’s biggest local supplier of water, heating, city gas, remote cooling, and wastewater diversion for more than 1 million people in metropolitan Copenhagen. They also build windmills and solar farms which supply energy to a greener Denmark. Together with eight municipalities, HOFOR is creating sustainable cities with a focus on rainstorm projects, energy optimization, and developing the future of supply solutions. HOFOR has over 150 years of experience, 1400 employees, and a turnover of 5 billion DKK.

**Innargi A/S** was founded in 2017 by A.P. Moller holding A/S and is today owned by A.P. Moller Holding, ATP and NRG. Innargi’s mission is to bring geothermal heating to millions of homes with expert knowledge from an experienced team of geologists, reservoir-, facility-, and drilling engineers as well as through partnerships with district heating companies.