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Urban energy waste can be avoided

More than half of all energy used in Europe is wasted, but cities around the world can achieve huge efficiency gains for the good of the environment and the climate by combining their power, heating and cooling plants.

Cities of all shapes and sizes need to take a long-term approach to planning and exploiting their existing power systems optimally. Doing so is the best way to do something good for the environment, according to Jens Ole Hansen, head of COWI's Energy Department.

Central solution

In Europe, more than half of all energy used in production is wasted. And one place where savings can be found is at power plants, where the heat generated during the electrical generation process often goes right out the window.

"The experience from Denmark is that a well-developed district heating network is crucial when it comes to using energy optimally," Hansen says. "Countries with warmer climates have similar experiences with district cooling networks."

Huge efficiency gains

Cities across the world can make huge efficiency gains to the benefit of the environment and climate by combining their power, heating, and cooling networks.

Calculations show that in cities like Washington, DC, Beijing and Dubai, district heating and cooling could lead to CO₂ emissions reductions of between 22 and 44 per cent.

"The technology is in place," Hansen says. "The solutions for district heating and cooling are well developed and effective, but it requires planning, long-term investment and not least political focus and resolve."

Spreading the word

That's a message that four world leaders in district heating technology – Grundfos, Danfoss, Logstor and COWI – have linked forces to help spread.

One of the initiatives the companies will undertake is a joint stand at the Bright Green exhibition at Copenhagen's Forum exposition centre 12-13 December. The expo is being held in connection with the UN climate summit (COP15) and will feature clean-tech companies from around the world demonstrating climate-friendly energy technologies.

"The exhibition allows us to meet other companies focusing on climate-friendly solutions," Hansen says. "The climate debate calls for holistic solutions, and it forces individual firms to cast aside their special interests and think in terms of combined energy and climate solutions. And that's something our company can deliver on."

Denmark is among the most energy efficient countries in the world

For the past 35 years, Danish energy policy has focused on three primary areas: energy conservation, co-production of heat and electricity and renewable energy.

At the core of the Danish model is a unique bundling of various technologies into its power grid. As a direct result of these efforts, the country's companies have developed products and know-how that has helped to cut power consumption while at the same time reducing CO₂ emissions – without affecting economic growth.

The determined focus on combined heat and power plants has meant that Denmark is among the most energy efficient countries in the world, and that since 1980 its power consumption has remained the same, even though GDP has risen almost 80 per cent.

Denmark is among the world's leading countries when it comes to combining urban electric and heating networks. Including heating plans as an element in urban planning has meant that 60 per cent of all homes are now connected to the district heating network.

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