



CROSS-BORDER COMMUNICATIONS



The agency for international marketers

**AWARD
WINNING
WORK**

WINNER 2013
HIGHLY COMMENDED

**B2B
AWARDS**



BEST USE OF CONTENT MARKETING

Project
Ecopolis

Client
Danfoss

Year
2013



Executive summary

Client

Danfoss

Campaign

Ecopolis

Introduction

District energy is a highly efficient way to heat homes and buildings by recycling waste heat from power production and other industrial processes. Danfoss is the world leader in engineering district energy networks and wanted to promote this technology as a solution to lowering emissions and energy consumption.

Insight

Stakeholder insight

Create demand by engaging new stakeholders – i.e., political and urban development leaders – with a view to shaping the EU regulatory environment in favour of district energy.

Channel insight

Tap the existing momentum on sustainable cities by framing district energy as an essential component in the creation of greener cities.

Branding insight

Position district energy as sustainable heating infrastructure for the urban environment.

Implementation

A 20-page tabloid-format thought leadership publication was the centerpiece, acting as a content library of articles, research, infographics, case studies, etc. Live and digital channels were also employed.

Why it won

This campaign deserves credit for its ambition. It was truly visionary, aiming at changing the way we heat buildings in Europe and, in doing so, changing our cities for the better. The central objective of getting district energy recognized for the first time in European energy efficiency legislation was achieved in July 2012.

Award briefing

Background

Danfoss is a world leader in the supply of components and systems for district energy (DE) networks. While DE is extremely popular in Danfoss' native Denmark, it is virtually unknown in many other parts of the world. Slowing growth at home and huge potential abroad was the stimulus for Danfoss deciding upon an ambitious long-term strategy to bring district energy to the world.

The concept

Power plants typically work at an efficiency of 40%, meaning 60% of all energy is lost during the process, usually discharged as heat. The concept of district heating is to capture the waste energy and use it to heat water, which is then distributed via a network of insulated underground pipes to homes and buildings for heating purposes. The brilliance of the system is that it reuses energy already in circulation (and often wasted) so requires not net increase in the use of valuable fuel resources.



The opportunity

District Energy isn't a new idea, but it's found new relevance in world seeking practical solutions to de-carbonisation. The latest generation of district energy infrastructure (4G) is a strong facilitator of lowering carbon emissions, increasing energy efficiency and the inclusion of renewable energy sources. While penetration of the EU heating market is only 10%, the prospects are huge with 70% of Europe potentially able to benefit from DE. Unlocking this potential required putting DE on the radar at an EU and global level.

Communication objectives

Essentially Danfoss wanted to grow the global market for DE, with an initial focus on the EU. In order to do this, specific branding and marcom goals were:

- Through issue advocacy, highlight the need for greater energy efficiency and the advantages DE can bring in this regard
- Increase awareness of DE among energy policy makers as a category within the energy sector
- Change the perception of DE, positioning it as a “green” infrastructure for heating urban regions

Ultimately, the objectives above were designed to support the first major tangible milestone, which was to get district energy recognised for the first time ever in the 2012 EU Energy Efficiency Directive.

Barriers

- **Awareness**
Sadly, DE is the best-kept secret in Scandinavia
- **Access**
Danfoss lacked contact with political decision makers
- **Perception**
The legacy image of DE is often outdated and negative
- **Regulation**
DE is not recognised in decarbonisation legislation, resulting in a lack of binding incentives
- **Practicalities**
Financing and implementation are not easy

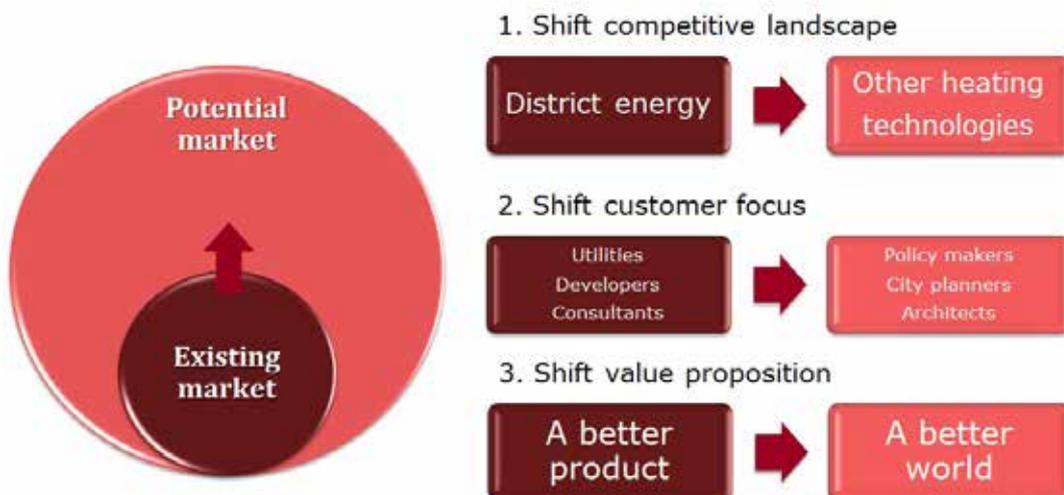
Target Group

Beyond its customer base, Danfoss now had to reach out to a broader, more popular set of stakeholders, with the purpose of creating new demand for DE by raising awareness of its environmental and social advantages:

- Public servants (policy makers and civil servants)
- Professional opinion leaders (architects, city planners, etc.)
- Community leaders (NGOs, interest groups)

Strategy

Achieving its goals required Danfoss to rethink everything. The most significant change in strategy was the decision to focus on political and urban development stakeholders to drive market creation. This in turn required rethinking the message and channels accordingly.



Positioning strategy

There is a strong pre-existing movement involved with sustainable cities. This movement is becoming increasingly visible and the positioning strategy for promoting DE was to tap into this existing conversation. By using pre-existing momentum, Danfoss saves time and money, while ensuring it connects with a relevant and already engaged audience. The task was to associate DE with the wider sustainable cities movement, presenting it as an essential component in the creation of green cities and sustainable development.

Content strategy

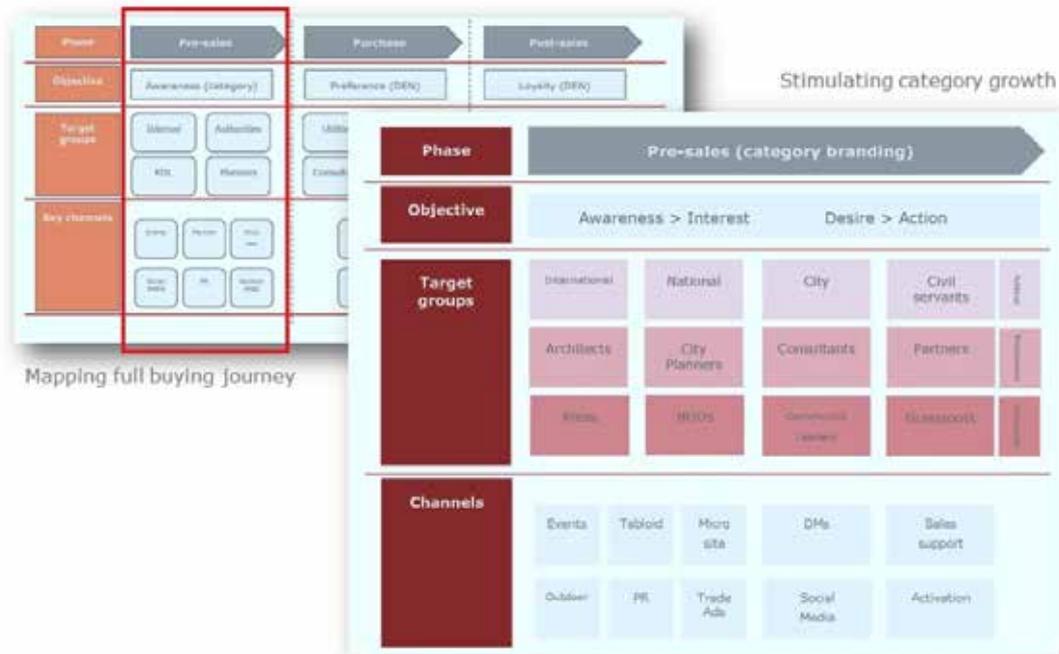
With the decision to focus on issue advocacy and category branding, a thought leadership strategy was taken in terms of content, with the aim to:

- Provide authoritative, impartial insight into the societal value of DE
- Make DE accessible, framing it in terms everyone understands
- Inspire further dialogue
- Associate DE with sustainable cities

Campaign planning

The overall buying cycle can be seen overleaf.

In addition to customers, Danfoss now needed to engage far more actively at a category level, promoting the concept of DE to an influential non-technical target group. The focus was not on selling components but on selling an idea – even an ideology. As such the focus for this campaign concentrated on the pre-sales phase – shown in more detail below.



Creative concept

Inspired by the insight that district energy is most relevant and competitive in metropolitan areas, this concept positions DE as sustainable heating infrastructure for cities. The “metro” positioning is emphasised using aerial photographs of urban settings. Specific DE benefits are highlighted by creating icons that shade certain “districts” in the image. The messaging plays with the word “district”, helping give greater meaning to term “district energy”.

Media

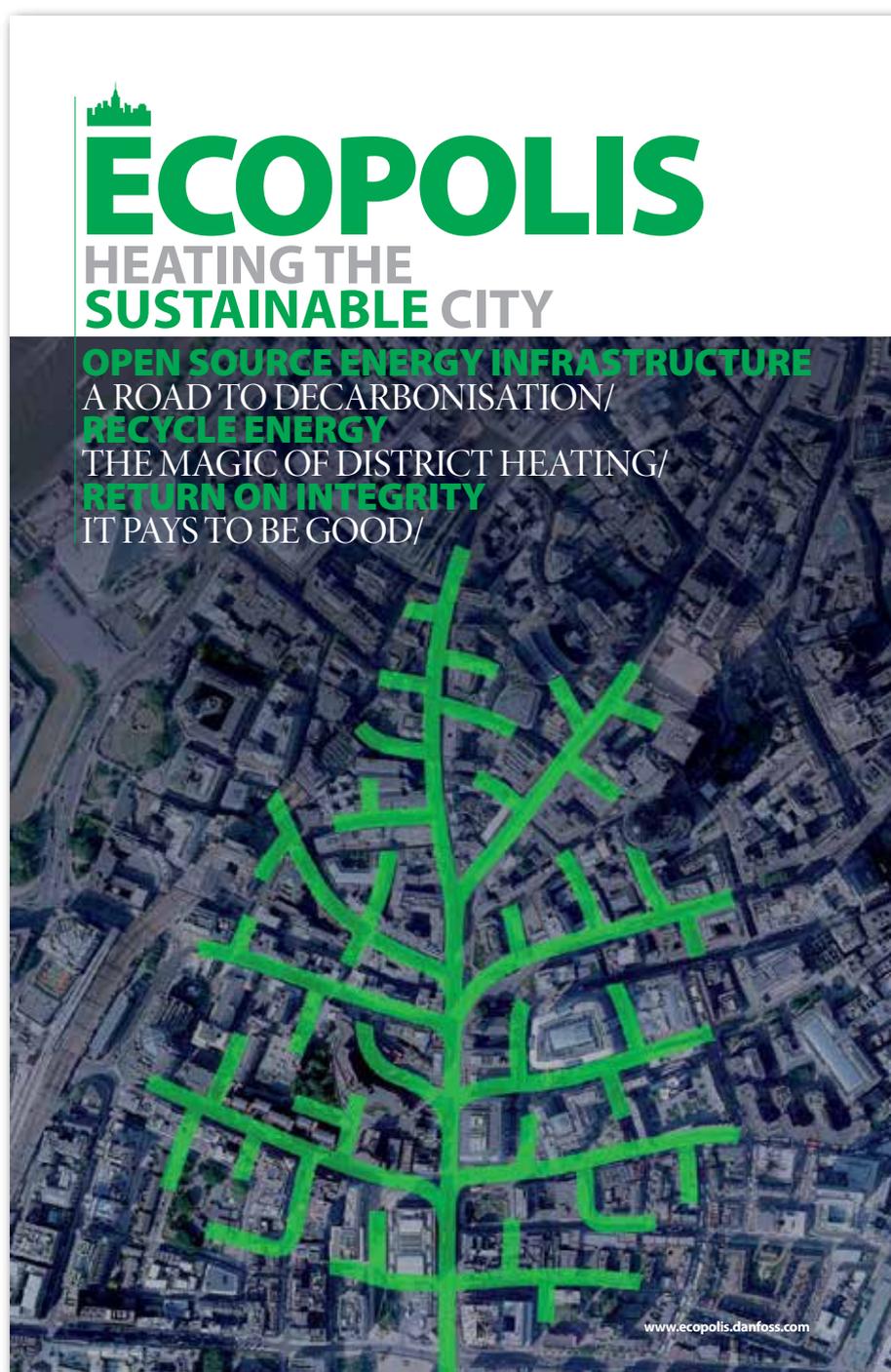
The centrepiece was a 20-page tabloid-format publication focused on issue advocacy and creating buzz around DE. It essentially acted as a content platform, containing articles, research, infographics, case studies, etc. Material for digital and live channels was also developed.

Thought-leadership newspaper

A centrepiece for issue advocacy and initiating stakeholder engagement, the tabloid-format publication is built up of a variety of thought-leadership content, e.g., articles, research, infographics, case studies, etc. Much of this content was repurposed afterwards for use in blogs, magazines, social media, presentations, etc.

Given the political nature of stakeholders, it was felt they are unlikely to respond strongly to traditional marketing materials. The political class do, however, understand news media and by making the news publication in a "tabloid" format, we tap this affinity, while creating a high-impact channel that really stands out. A high degree of independence is also reflected in the brand identity. This is not supposed to be a Danfoss sales brochure, but rather a public interest piece.

Given its broad-based content and striking format, the publication acted as a manifesto for the district energy movement, being used as a door-opener, a direct mail item or a leave behind for the Danfoss public affairs team.



Describing district energy as “recycled energy” immediately put the advantages in terms everyone could understand and engage with.



For a world in energy crisis, it is a sobering thought that 66% of all energy used in power production is lost. It is among the most wasteful industrial processes in existence – yet a simple solution is at hand.



RECYCLE ENERGY

34% utilised



66% waste



A staggering 66% of the heat used to power plants is wasted, lost as heat to the atmosphere. District Heating lets us reuse this energy as heat.



ECONOMICS OF RECYCLING
In the story of energy – energy and the economy. Since the industrial revolution, economic development has been fundamentally dependent on energy. Yet the same source of fossil fuels combined with the environmental threat they pose, mean limited growth. Now, an alternative energy system is quickly becoming a reality.

Finding clean, sustainable sources of energy is of course central to reducing dependency on fossil fuels. But huge strides have been made in making renewable power increasingly viable. However, we still know it is a fact that our current energy infrastructure is needlessly inefficient and that there is a genuine potential for generating energy through recovery and recycling initiatives.

Indeed, the adoption of renewable energy is meaningless unless accompanied by a corresponding improvement in energy efficiency. In other words, the little point in generating more sustainable energy if it is continuously lost as energy in an unsustainable way.

HEATING AS A SERVICE
It will be the challenge of the 2030s to 2050s. District Heating and Cooling will power millions of households all over the world. It is a strong case for the power production. For every 10 megawatts (MW) of electricity generated, 200 MW of heat can be produced. District Heating is an industrial process going for 100 years or more.

This waste was accepted when fossil fuel was cheap and plentiful (and global warming not yet a concern). Today the situation couldn't be more different or the need for change more urgent.

Not much can be done to make power generation itself more efficient. However, what can and happens is to recover the energy (lost as heat) in the process and reuse it for other purposes.

RECYCLING HEAT
Recycling heat in this way is the basic principle behind District Heating (or District Energy), a system for, contrary to what you might think, commercial heating. The concept is to capture waste energy from power production and use it as heat, which is then distributed via underground pipes to homes and offices. In heating processes, the system can be used for cooling, too, by using recovered energy to power air-conditioning systems.

The balance of the system is that it requires no "fuel" energy (fuel) to be used (burning) and (cooling) is powered simply by using energy that's already in circulation – and often wasted.

SCALE PLANNING
The growing urban District Energy is remarkably compact and stable, making it highly fit for use in terms of both scalability and compatibility with fuel sources. In fact, District Energy networks can tap directly into existing power grids to supply heat to individual buildings or business parks. In this way, it's possible to provide heating and cooling for thousands of people using just renewable and recycled energy.

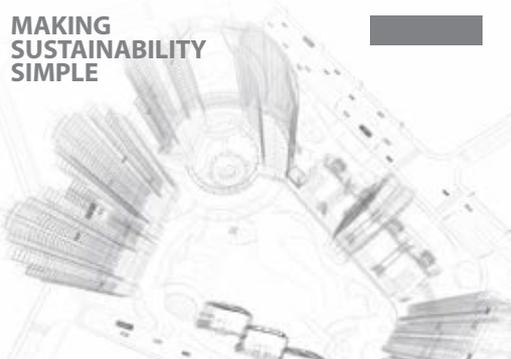
Recycling heat, through District Energy networks, opens the way to massively reducing carbon emissions, particularly in cities where heat demand is most intense. These reductions are achieved without adding costs and are built upon existing energy-saving standards. On the contrary, District Energy is widely used in some of Europe's most advanced economies, where productivity and high living standards go hand in hand with real carbon savings. District Energy in Copenhagen saves 600,000 tonnes of CO₂ annually, while Helsinki saves 1.5 million tonnes per year.

Increasingly, District Energy is also delivering these benefits, but at a lower cost. In this process, private, open, uncontrolled decentralisation is making international pledges on emissions control.

ECOPOLIS
In a portion of the world's population will live in cities that consume 75% of the world's energy. District Heating has a vital role to play in meeting that demand, while enabling the creation of ever more sustainable urban centres. Europe has an opportunity to lead the world in demonstrating that smart, prosperous cities are compatible with environmental preservation. The vision of an Ecopolis – a carbon-neutral living community – is within our grasp if we dare to reach for it.

To combat outdated misconceptions, modernising the image and explanation of district energy helped readers understand how new 4G networks are highly scalable and compatible with renewable energy sources.

MAKING SUSTAINABILITY SIMPLE



OPEN SOURCE ENERGY INFRASTRUCTURE

District Energy isn't a new idea, but it's found new relevance in a world seeking practical solutions to decarbonisation. The latest generation of District Energy infrastructure (4G) enables city planners to vastly improve energy efficiency while creating a viable channel for accessing renewable sources. Safe, sustainable, scalable – District Energy is an essential component in achieving real carbon savings today.

THE SWEDISH MODEL

Since 1980, CO₂ emissions from Swedish District Energy systems have been reduced by 90% (three times the savings realised by the EU).

Contribution on fossil fuels for District Energy has been reduced from 100% to 3%.

The Swedish Government estimates that the EU as a whole could meet its commitment to CO₂ reduction simply by doubling the number of District Energy installations.

DISTRICT HEATING FROM 1G TO 4G

DEVELOPMENT OF DISTRICT HEATING SYSTEM CHARACTERISTICS OVER FOUR GENERATIONS

Generation	Temperature level	Energy efficiency	Key Characteristics
1G	200°C	Low	High-pressure, steel pipes; Incompressible fluids; High energy demand; Large 'boiler' on-site systems
2G	~150°C	Medium	Insulated pipes; Heat exchanger systems; Large 'boiler' on-site systems
3G	~100°C	High	Insulated pipes; Individualised contract; Individualised solution (with heat exchanger); Metering and monitoring
4G	<100°C	Very High	Low energy demand; Smart grid systems; Metering of energy sources; Distribution and return; 2-way DH

District Energy (also known as District Heating and Cooling) is an extremely efficient, low-cost, low-maintenance system for heating residential, commercial and industrial buildings. Its greatest attribute, however, is that it also provides an effective solution to help address global concerns in regard to fuel shortages, rising fuel costs and the growing impact of our energy demands on the environment.

FLEXIBLE, ECONOMIC AND SAFE
A single District Energy network is able to provide heat to numerous end-users at the same time and even has the potential of saving energy through thermal storage facilities. One of the system's greatest advantages is that it makes ingenious use of heat that is generated industrially – often in huge amounts – but is otherwise wasted. For example, a typical power plant may only waste over 60% of the excess heat generated by its production process. When coupled with District Heating and Cooling, this energy can be harvested and fed back into the heating network in a process known as "cogeneration".

District Energy is also extremely flexible, especially in terms of which heat/energy sources it can use – and how many. New heating sources can be easily added without disrupting the system or disturbing consumers – far more efficient than the current method of having to change individual heating units in each building as new technology comes onto the market. Because District Heating pipes have a longer life than a generating plant, networks can be put in place based on whichever heat supply technology is most economically or politically appropriate. With technology moving at a rapid pace, this also provides a simple framework to introduce new energy sources that may become available in the future.

By their nature, District Energy systems also offer a viable alternative to conventional heating systems. Unlike central heating boilers, there is no need for a naked flame within the home, which means less risk of accidental fires. Also, the system does not require an individual gas supply, which can lead to dangerous gas leaks. Additionally, all high pressures and temperatures are contained in a central plant and network, shielding consumers from related risks.

LEADING THE CHARGE
As the financial, environmental and political costs of fossil fuels increase, District Energy allows a smooth development towards greener alternatives. In fact, this technology has already been adopted in some countries across Europe, where as many as half the houses are connected to a District Energy network. In certain European cities the proportion of heating to change individual heating units in each building as new technology comes onto the market. Because District Heating pipes have a longer life than a generating plant, networks can be put in place based on whichever heat supply technology is most economically or politically appropriate. With technology moving at a rapid pace, this also provides a simple framework to introduce new energy sources that may become available in the future.

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is even higher. In Helsinki and Copenhagen, for example, nearly 90% of all buildings benefit from District Energy, accounting for 49% and 60% of their heat supply respectively. In Sweden, 270 municipalities currently use the system, representing 30 TWh/year of energy consumption. Further afield, in Moscow, District Energy installations account for 60,000 GWh/year of energy use.

HOW IS THE TIME
There is hard evidence that District Energy is both economically and environmentally advantageous – and with CO₂ emissions set to increase by 50% in the next 20 years, the time to act is now. It is estimated that if the current share of District Energy in the EU were to double, the following results would be achieved:

- Lower import dependency of 4.3 EJ – or the equivalent of Poland's entire energy supply
- Energy efficiencies leading to a reduction of 2.1 EJ – or a match energy as Sweden uses in a year
- Reduction of 400 million tonnes of CO₂ per year – the amount that France produces from land combination every year

This technology can help lead the way towards a more eco-friendly society where the increased demand for energy is fulfilled by actually using fewer energy sources. Of course, implementa-

tion of District Energy requires a national political push, but the rewards are clear: "Doing more with heat" is not only the title of the EU Commission's paper on energy efficiency, it is a very realistic option.

HOT FACTS

- In a District Heating system, heat energy that would otherwise be wasted is captured, stored and distributed to commercial, residential and industrial buildings through a network of insulated pipes in the water or steam.
- The latest generation of District Heating technology makes use of a mix of energy sources, which typically include:
- Biofuel using conventional or advanced techniques as biomass
- Waste heat from industrial processes
- Waste heat from power generation such as a Combined Heat and Power plant
- Energy generated from municipal waste incineration
- Natural heat sources such as solar, geothermal or ocean

Infographics help explain how district energy fits into the wider energy ecosystem.



ECOPOLIS

RENEWABLE ENERGY

WIND
Commercial wind farms now operate in close to 80 countries, with wind accounting for an estimated 2% of global electricity supply in 2011. District Energy can tap wind both directly and indirectly via cogeneration.

BIOMASS
Biomass is the most common renewable energy source in use today, accounting for over 10% of global electricity consumption. It's also the most traditional biomass source. The EU generates 82.4 TWh in gross energy production from biomass, 50% of which is employed in cogeneration plants for District Energy applications.

GEOTHERMAL
Commercial geothermal plants produce 12.5 TWh in 2010 across some 24 countries. The US has the world's largest geothermal production capacity, with the Philippines obtaining 10% of its electricity from geothermal sources. New Zealand's geothermal and EU's Iceland rely heavily on geothermal energy too.

SOLAR
Solar hot water and heating capacity reached approximately 50 GW in 2010, with China, Turkey, Germany, Japan and Greece leading the world in solar thermal capacity. When used for producing hot water only, there is a growing trend toward larger combined systems that provide both hot water and space heating.

URBAN LEADERS ARE EMBRACING A NEW VISION FOR SUPPLYING ENERGY TO THEIR CITIES, ONE THAT COMBINES LOCAL RENEWABLES, COGENERATION PLANTS AND DISTRICT ENERGY IN ONE LOW-CARBON NETWORK.

SURPLUS ENERGY

INDUSTRIAL SURPLUS HEAT
Industrial processes generate 10% of energy consumption in industrial countries. It is estimated that over half of that energy is discharged as waste into the atmosphere or cooling systems. District Heating can use efficiently to capture some of that heat.

WASTE-TO-ENERGY
The incineration of municipal solid waste (MSW) can effectively be used to reduce volume by as much as 90%. Waste-to-energy from incinerators can be used directly for electricity production or District Heating purposes.

COGENERATION
Cogeneration (also known as Combined Heat and Power or CHP) plants are at the heart of any District Energy network, taking power generation with heating and cooling applications. In this way, power plant efficiency is lifted by around 50%. Some countries obtain as much as 50% of their energy through cogeneration heating systems.

THE VALUE CHAIN

The basic principle behind District Energy is to produce energy centrally in a power plant or a cogeneration plant, and then distribute it via a network of insulated pipes to buildings. These pipes are laid underground via excavations and connect throughout a building's utility systems.

SCALABILITY
A District Energy network is extremely flexible and can be used to connect as few as 20-40 houses. This allows cities to grow an existing network as building, planning and other opportunities become available. As a result, District Energy requires virtually all energy services, making it future proof to changes in the built environment and energy infrastructure of a city.

APPLICATION

At present, most high-rise buildings are connected to the District Heating network. A substitution and heat exchanger efficiently transfer hot water for room heating and domestic hot water. District Energy can also be used for heating and cooling in buildings with HVAC and CHP systems.

PIPES
The ground-level level in distributed (as water or steam) to commercial and residential buildings is a network of pre-insulated pipes, consisting of supply and return lines. The pipes are generally installed underground, although underground, although underground, although underground. These storage systems can be integrated into the network to store and peak load demands.

www.ecopolis.danfoss.com

Reaching out to grassroots supporters and local government helped connect with stakeholders such as city mayors at the crucial metropolitan level.

DISTRICT WISE

CITIES ARE HOME TO 80% OF THE EU'S POPULATION AND ARE RESPONSIBLE FOR 70% OF GREENHOUSE GAS EMISSIONS. THEY ARE AT ONCE THE SOURCE OF THE PROBLEM AND THE SOLUTION. FORTUNATELY, AS MORE AND MORE LOCAL AUTHORITIES EMBRACE THEIR RIGHT AND RESPONSIBILITY TO TAKE OWNERSHIP OF THEIR ENERGY FUTURES, THEY ARE ALSO AN INCREASINGLY VIBRANT HOTBED OF VISION AND LEADERSHIP.

The inherently global nature of our climate and energy challenges has quite naturally led to a focus on resolving the problems via high-level international governance.

Yet, while a meaningful global consensus remains a distant prospect, a new narrative, with a much more local flavour, has begun to emerge. It is increasingly clear that practical action on climate change will take place not in the conference rooms of the United Nations but rather in the cities where so many of us live and work.

The concept of thinking globally and acting locally has never been more relevant.

PLANNING FOR SUCCESS
Sustainable cities do not just happen. They are the result of a thoughtful and coherent approach to urban development in which key elements of infrastructure such as energy, transport, buildings, water and waste management are considered not in isolation but rather as connected parts of a whole.

Such a concerted approach requires hands-on leadership from local authorities with a commitment to making their city a cleaner, more environmentally friendly and more pleasant place to live. Most of all, it requires a plan.

GREEN DISTRICT - DISTRICT ENERGY
District Heating and Cooling networks are an ideal fit in the heart of a green city or district. In dense urban environments, where heat demand is inevitably highest, they are the ideal means of exploiting locally available streams of renewable energy and surplus heat supply for a useful purpose. Such systems generate significant, provable reductions in primary energy consumption, cut CO₂ emissions, and reduce the city's reliance on energy imported from other countries or regions, all while providing citizens with the standard of comfort and reliability they expect.

“ District Heating not only offers excellent opportunities for reducing environmental pollution, but also for achieving the goal of saving energy. It is an extremely flexible technology which can make use of any fuel including the utilisation of waste energy, renewables and, most significantly, the application of combined heat and power (CHP). **”**
International Energy Agency

“ Cities are key to the EU's objectives of 20% energy savings by 2020 and to developing a low-carbon economy by 2050, because 70% of the EU's energy consumption takes place in cities. **”**
EU Energy Commissioner Günther Oettinger

“ Cities and counties looking for ways to cut energy use and save energy dollars can choose from a dizzying variety of alternatives. However, separate initiatives while important are not as effective as a comprehensive and integrated program. **”**
US Department of Energy

MAKING ENERGY ACCOUNTABLE

WE HAVE THREE MAJOR INNER-CITY ENERGY CHALLENGES. LUCKILY THERE IS ONLY ONE ANSWER TO ALL THREE – EFFICIENCY

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1 REALISING THE LOW-CARBON FUTURE

Written by Dafydd Ab Iago, energy journalist



Moving towards a low-carbon future requires a radical rethink of how communities and individuals live. But merely leading for targets laid down by governments to reduce CO₂ emissions by moving away from dirty fuels will not be enough. We will also need to turn the concept of sustainable communities into a tangible reality lived, and even celebrated, by people around the world.

All of this represents no less than a revolution towards greater energy efficiency. Decarbonisation must begin by examining how to change current energy consumption patterns and cut out wasteful energy use. Today, only around 40% of the fuel input into conventional power plants is converted to electricity. Analysis indicates that over half of the primary energy in many developed countries may be lost as waste heat on its way to the customer. At current oil prices, this would amount to over €1,000 lost per citizen in developed nations.

Switching power generation from fossil fuel to renewable energy sources is only part of the solution. To fully achieve decarbonisation, we will need to unlock the potential of energy efficiency in all infrastructure, whether dependent on fossil or renewable energy.

Unfortunately, many solutions to climate change remain unproven. At best, they may deliver results that are a time too late to turn around global warming. We need, then, to also implement a range of tested systems and technologies that intelligently build upon pre-existing infrastructures. Only in this way will we make a meaningful impact on carbon emissions in the near future.

One example of a proven technology is District Energy. This is a wonderful example of how a simple, effective and practical solution can be found for heating and cooling needs within communities. District Energy can simultaneously reduce emissions as well as boost the uptake of renewables in a controlled, secure and phased process.

The proven technology behind District Energy allows plants to use a variety of energy sources, including renewables such as wind, solar and geothermal heat. This may then be moved within the District Energy network until it is needed. District Energy is also able to capture the major part of surplus heat from power generation, allowing plants to reach efficiency rates of 90%.

Greater use of District Energy, recycling local waste energy and boosting use of renewables will also temper the rise of ever more expensive energy imports. At high prices for fossil fuels, societal problems could be as low as in three years for heat distribution pipes placed in densely populated and developed urban areas.

HOT FACTS

Currently, over half of the primary energy in many countries goes to heat to warm heat in its way to the customer. At current oil prices, this amounts to over €1,000 lost per citizen.

By 2020 the EU aims to reduce energy usage across Europe by 20% while – at the same time – boosting renewable energy to 20%.

District Heating is able to capture the major part of surplus heat from power generation, allowing plants to reach efficiency rates of 90%.

Europe's District Energy industry is already reporting its expertise around the world, especially to high-growth markets.



“

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SECURITY THROUGH SELF-RELIANCE

Written by Aidan Turnbull, energy journalist



In Europe, we may all be connected, but our energy supply security is tenuous at best. This was dramatically highlighted in November 2006 when a power failure in a German electricity grid spread by E.ON AG caused confusion with blackouts. Around 15 million households across France, Belgium, Germany, Italy, Portugal, Spain and Eastern Europe were affected.

The grid failure in Germany led to the biggest power outage in at least 30 years through a domino effect that swept through Western and Eastern Europe; the effects of the power outage were also felt in Austria, Croatia and the Netherlands.

EU nations possess approximately 60% of the world's proven oil reserves and 2% of the world's proven natural gas reserves. The EU holds 4% of proven coal reserves, and has around 10% of the world's electric generating capacity.

Despite this, the EU is not impervious to energy. According to a report published by the European Commission, European Union Energy Outlook to 2020, two-thirds of the EU's total energy requirements will be imported by 2020. Europe expects that the EU will import up to 75% of its natural gas requirements by 2020. Countries such as Russia and Norway and regions such as the Middle East remain major exporters of oil to EU member countries.

While world energy demand in the near term has dipped slightly as a result of the global economic downturn, most EU countries project that energy consumption growth rates will return to pre-economic levels within a few years.

EUROPE'S CURRENT CONSUMPTION
The latest European Environment Agency report, Final energy consumption by sector (EN07/EN08/016), an assessment published in March 2012, shows that between 1990 and 2009 final energy consumption in the EU-27 increased by 3.2% at an annual average rate of 0.2%, whereas the final energy consumption decreased by 44% between 2007 and 2009. Transport remains the sector with the fastest growing energy consumption (18.4% over the period 1990-2009) followed by services (12.7% over the period 1990-2009).

Over the same period, household final energy consumption increased by about 10%, while final consumption in industry fell by 27.0%. This decline in industry included a major fall of 4.7% during the period 2008-2009, when EU-27 final energy consumption decreased by 5.2%. On average, one person in the EU countries used 21 tonnes of oil equivalent to meet their energy needs in 2009.

By 2020 the EU will seek to reduce energy usage across Europe by 20% while – at the same time – boosting renewable energy to 20% of the EU's overall final energy consumption. Greenhouse gas emissions in Europe must also be cut by 20%.

In Europe, countries have to meet the need for reliable power in circumstances where grid-supplied electricity is uneconomic, due to wiring fossil fuel plants or unreliable due to the unpredictability of renewable energy.

COGENERATION & CHP

Making energy systems more sustainable and secure is one of the greatest challenges for Europe. The potential is finally there. It is now essential to unlock it and find appropriate ways for industry, research and government to work together to achieve common targets.

Combined heat and power plants, where 'waste' heat from power generation is used for District Heating Energy are also a well-tried technology in parts of Europe. While it heats about 50% of all homes in Denmark, Finland, Poland, Sweden and Slovakia, it currently only plays a relatively small role in places such as the UK or France, but this is set to improve.

District Energy can certainly play an important role in a phased reduction in energy importation and greater independence. District Energy also reflects a more efficient use of existing fuel resources as it relies on recycling heat during the power production process. With a large proportion of Europe's energy being lost to the atmosphere at the end of the day, District Heating and Cooling, currently only responsible for supplying 9-10% of the EU's heating, has a huge potential to deliver cost savings through energy recovery and utilisation in heating – and cooling – over cities today.

DISTRICT HEATING & COOLING

District Heating and Cooling systems dovetail well with renewable energy programmes. Europe is regarded as one of the best situated continents for using renewable energy systems based on sunlight, wind, tide, lakes, geothermal heat and biomass sources. In 2011, for example, installed wind power capacity in the European Union met 6.3% of the EU's total electricity needs – 10,937 MW. A recent European Environment Agency report entitled Europe's Climate and Energy Final Energy Potential confirms that wind energy could power Europe many times over.

District Heating is one of the best heating systems which is fully compatible with renewable resources. It's even possible to use surplus renewable energy as a primary energy for powering District Heating systems. For example, instead of turning wind turbines off during periods of excess, the 'surplus' energy can be used to directly fuel a District Heating system. Other energy sources include burning biomass, heat-only boiler stations, geothermal heating and central solar heating.

Research shows that District Heating plants can provide higher efficiencies and better pollution control than traditional localised boilers of the past. Indeed, District Heating with Combined Heat and Power (CHP) is one of Europe's cheapest approaches to cutting carbon, and offers one of the lowest carbon footprints of all fossil generation plants.

It seems clear that fuel flexibility and multi-fuel systems are the way forward for an energy-independent Europe. By using a spread of innovative energy resources, the EU's strategic and national interests become more secure so that no one can hold Europe ransom over the issue of energy supplies.

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EUROPE AHEAD IN THE RACE TO SUSTAINABLE ENERGY

Written by Steve Hodgson, energy journalist



At a time of almost unprecedented economic crisis across Europe, countries are also facing the need for radical changes to their energy systems and markets. The uncontrolled emissions of carbon dioxide into the atmosphere through inefficient and wasteful burning of fossil fuels is a historical practice that has to come to an end. Refuse on fossil fuels will eventually be substituted by low- or zero-carbon energy systems.

Clearly, the transition to low-carbon energy will be lengthy, highly disruptive and expensive. But, given the finite nature of fossil fuels and their associated upward long-term price trends, the costs in economic and environmental terms of not transitioning would be even higher. The EU and most European countries have already taken several steps along the path to a low-carbon energy economy based on renewables, possibly a new generation of smaller power plants, and energy efficiency, both in generation and energy use.

And, while change will be difficult, Europe is in an excellent position to reap the long-term benefits of its pioneering approach to both renewables and energy efficiency.

Europe leads the world in the development of renewable energy technologies and deployment. Wind farms now supply very significant proportions of total electricity requirements in Denmark, Germany, Spain and the UK, with other countries catching up while numerous projects are being made with both solar energy and biomass. Both electricity and solar farms feed electricity into national electricity grids for onward transmission and distribution, while thermal energy from biomass and solar thermal and geothermal sources supplies local heating loads.

In both cases, the inputs from local renewable sources diversify energy systems, making them less reliant on transport sector aside – on petroleum products.

The environmental benefits of renewables are clear from the start, but the economic picture is less so. On the one hand, renewables – wind, sun, biomass, etc. – are distributed locally and therefore don't need to be imported from producer countries. But the transition to any new technology and market system needs support. Subsidies and special tariffs for renewables are costing governments dearly, particularly in the early years of their deployment. However, renewable energy costs are on a measurable long-term downward path, in stark contrast to the rally but overall slow growth of fossil fuel prices.

Inevitably, the transition to low-carbon energy is going to take several decades. In the short term, attention also needs to be paid to increasing the efficiency with which fossil fuels are used. Europe, and Scandinavia in particular, leads the world in developing sustainable energy systems for cities, principally through the use of high-efficiency District Heating (and Cooling) systems. But it's not only Scandinavia – many cities in Central and Eastern Europe, Germany, France, northern Italy and the UK also rely on District Energy systems.

The benefits of traditional District Energy technology have been proven over many decades, yet the technology also continues to evolve, with the addition of renewable fuels to the supply side and the development of better heating controls in buildings on the demand side.

EMERGING POTENTIAL

Europe's 'best mover' advantage with District Energy is longer established than its pioneering efforts with renewables and, in several countries, District Energy is the mainstream energy delivery system.

Europe's District Energy industry is already exporting its expertise around the world. Most of the countries District Energy schemes of Russia are several decades old and the scope to add high-efficiency cogeneration units, replace aged and leaky heat distribution mains and add effective heat metering and controls in heat buildings is enormous. Refurbishment

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Europe's 'first mover' advantage with District Energy is longer established than its pioneering efforts with renewables and, in several countries, District Energy is the mainstream energy delivery system.

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“ By 2020 the EU will seek to reduce energy usage across Europe by 20% while – at the same time – boosting renewable energy to 20% of the EU's overall final energy consumption. Greenhouse gas emissions in Europe must also be cut by 20%.”

Leading thinkers from the world of politics, business, academia and activism cast their view on the forces shaping sustainable cities and the role District Heating can play.

DISTRICT HEATING

There's a gap between perception and reality

Stella S. Christensen, District Energy Officer, Helsinki

A COMMERCIAL VIEW

"Energy efficiency is a powerful solution in the short term, but it will also need to be part of a long-term strategy simply because the demand for energy will be substantially in the coming years. So although renewables will be more and more important as we progress into a carbon-free society, energy savings will always be an integral element in a green economy."

Stella S. Christensen, District Energy Officer, Helsinki

A MUNICIPAL VIEW

"In Helsinki 93% of our dwellings are connected to District Heating – because this is the cheapest option. We use our waste and waste water to heat our city while also protecting the environment."

Pekka Seppälä, Deputy Mayor of Helsinki

A CITY PLANNING VIEW

"District Heating allows a more efficient use of local resources – ranging from wasted heat to local renewables, as well as cogeneration. This helps local authorities to keep the energy money at home while providing a safer and cleaner environment for their citizens, allowing a higher quality of life for all."

Dieter Hagels, Executive Director of Energy Cities

A TRADE BODY VIEW

"If you look at the European energy balance, about half of the primary energy going into the system is lost on its way to the end-user – mostly in the form of waste heat. The economic value of this (wasted) heat is close to €500 billion. By recovering some of that potential, there are huge economic gains to be made."

Saskia Prosser, Managing Director of Barbon and Power

A MUNICIPAL VIEW

"I heat my house with kitchen waste"

Beate Klumpp, Mayor of the Borough of München

A UTILITY VIEW

"By relying on District Heating rather than heating oil, we avoid 1.1 million tonnes of CO₂ emissions each year, an amount equivalent to that generated by all the cars in Munich."

Beate Klumpp, Mayor of the Borough of München

A EUROPEAN VIEW

"It is very important that Europe imports less energy to save money. Since energy is becoming both scarce and expensive, greater energy efficiency must be a priority and we are pushing for a strong, meaningful Energy Efficiency Directive. District Heating has a role to play in terms of improving efficiency and integrating renewable."

Britta Rosner, Member of the European Parliament

AN ACADEMIC VIEW

"Most people think of energy efficiency as expensive and difficult. In reality, solutions can be simple and rather low cost. There are two dimensions to the challenge: one is the need to reduce CO₂ through greater use of renewables, the other higher energy efficiency. District Heating can solve both these issues in urban areas."

Dr. Armin Wimmer, Professor of Energy Economics at the Technical University of Munich

A case story exemplifies the vast potential of district energy in cutting emissions and lifting efficiency.

We showed a strong link between winners of European Green Capital Awards and district energy. Awards like this hold tremendous political prestige and associate district energy with sustainable cities.

MUNICH A MODEL CITY FOR A SUSTAINABLE FUTURE

Not only is Munich the financial centre of southern Germany and home to some of the country's most beautiful architecture, it is also a shining example of how renewable energy can be used to power an entire city. Today, with a €9 billion investment programme in renewable energy, including 200 million on the extension of the District Heating network, Stadtwärme München, the municipal utility company, aims to supply every customer with renewable energy by 2025, reduce CO₂ emissions by 50% by 2030 and become the first German city to have a District Heating that relies solely on renewable sources by 2040.

SETTING THE STANDARD

Munich is one of the few cities in the world that has taken global warming by the horns, introducing many green initiatives over the last few decades to reduce waste and make better use of its energy infrastructure, including renewables. For example, Stadtwärme München generates enough renewable electricity to power the city's metro, tram and 800,000 private households; residents are encouraged to use either bicycles or electric vehicles (under powered recharging points are found in many car parks); housing development must adhere to strict ecological criteria and old municipal buildings must be retrofitted to an energy efficiency standard that is 30% stricter than the German Federal Standard.

A DISTRICT HEATING SYSTEM TO BE PROUD OF

Adding to its list of environmental accolades, Munich also boasts one of the largest and most efficient District Heating systems in Europe. The network uses over 600 km of insulated pipes to distribute environmentally friendly heat throughout the city, powered by 4 billion kWh of annual waste energy from Munich's power plants. It's a highly efficient system, to put it in perspective, generating the same amount of heat energy using oil-powered household heating systems would require 40 million litres of heating oil, which would release approximately 1.1 million tons of CO₂ into the air, the same amount as is generated by all of Munich's automobile traffic in a year! It also stacks up from a financial point of view. Stadtwärme München is so confident of its ability to meet its end-users' energy and comfort needs at a competitive price that it will not impose any obligation to connect to the heat network, preferring instead to compete with more conventional heating alternatives such as oil and gas on its merits.

One of Munich's new environmental goals is to become the first large German city with a District Heating system powered completely by renewable energy. It is an ambitious project, with plans to supply an additional 140,000 apartments with heat and, at the same time, use 300,000 tonnes of CO₂ that would have been generated by conventional heating methods. One way the city is hoping to turn this vision into reality is by making use of a previously untapped renewable energy source – geothermal.

TAPPING THE EARTH'S ENERGY

Using naturally heated water for domestic or commercial purposes such as a new idea. More than 72 countries benefit from geothermal energy, Iceland being the world leader (95% of its homes are heated this way, saving over US\$300 million annually in avoided oil imports). One great advantage of geothermal energy is that it can provide heat on a continuous basis and, if needed, also generate electricity in a similar way to a conventional heat and power cogeneration station. Fortunately for Munich, the city is ideally located in the Franconian Jura basin, a huge underground reservoir of hot water with temperatures ranging from 80 to 140 °C, roughly 3,000 metres below the surface, making it perfectly positioned to make full use of geothermal energy. Recent surveys show that the city has the potential for 40,000 kWh of heat a year. Munich's quest for a fully sustainable District Heating system is clearly not just a pipe dream.

A SOLAR SOLUTION

Munich has also started using photovoltaic technology as another energy source to feed its District Heating system. Here, solar energy is collected during summer months via solar roof panels and other stores in special hot water storage units or used immediately for washing, cooking, etc. by local residents. During winter, the stored water is pumped to the plant, where it is used for everyday purposes or additionally for central heating. Unfortunately, photovoltaic technology is relatively expensive and so this process is not yet widely used. However, as cheap technology becomes available over time, solar energy is expected to provide a substantial contribution to Munich's heating needs.

IT CAN BE DONE!

Munich has come a long way in its vision to become a truly sustainable city. It has invested a considerable amount of time, effort and money in environmentally friendly initiatives such as its extensive District Heating system, and it continues to do so. The ecological benefits are clear; however, it is already apparent that many of these investments are paying for themselves through energy cost savings over the longer term. The local economy has also benefited enormously, having capitalized on development opportunities, creating a pool of local expertise that is now in global demand and bringing competitive advantage to the city as an increasingly attractive place to do business. It has made a real difference to the customer. Stadtwärme München does not plan to impose any obligation on end-users to connect to the DHC network. Instead, it will focus on providing the highest standards of comfort at a competitive price in order to convince apartment owners to choose District Energy on its merits. Thanks to its energetic vision and commitment, Munich is one of the world's best examples of initiative in action.

"I am optimistic that we will reach our goal that by 2025 all customers in the city will be supplied by 100 percent renewable energy."

Hop Mautzinger, Deputy Mayor of Munich

GREEN CITIES BELIEVE IN DISTRICT ENERGY

The European Green Capital Award rewards the efforts made by European cities to combat environmental issues. When compared back to back, it quickly becomes apparent that District Energy has played a central role in each winning city's approach to sustainability.



<p>2010 STOCKHOLM</p> <p>Stockholm was a worthy first EGCA winner and has an unusually low carbon footprint for its size and 800,000 strong population. An increased market share for District Energy and changes in District Heating production have been the greatest contributors to greenhouse gas emission reductions.</p> <p>STOCKHOLM IN NUMBERS:</p> <ul style="list-style-type: none"> District Energy covers 50% of total heating needs 80% of the network is heated by renewable sources Greenhouse gases have been reduced by 50,000 tonnes since 1990 District Heating reduces emissions by 50,000 tonnes annually Significant emissions have decreased by 95% since the 1960s 	<p>2011 HAMBURG</p> <p>With a population of 1.8 million, Hamburg is the 10th largest city in Europe. In "Year of Climate" Hamburg opted as the first German city to implement a comprehensive plan for addressing environmental problems, including improvements to its already extensive District Heating network.</p> <p>HAMBURG IN NUMBERS:</p> <ul style="list-style-type: none"> District Energy covers 90% of CO₂ emissions 800 km long The system provides almost 100% of District Heating per year 100% of household hot water is covered by District Heating CO₂ emissions from the network has been cut by 200,000 tonnes by 2020 	<p>2012 VITORIA-GASTEIZ</p> <p>Vitoria-Gasteiz is a shining example of how a city can be made more sustainable. It has plans to create an "Urban Green Grid" by using a shared network of solar panels and implementing more eco-efficient buildings such as District Heating and solar energy.</p> <p>VITORIA-GASTEIZ IN NUMBERS:</p> <ul style="list-style-type: none"> City has a 100% green grid with good air quality More buildings are being retrofitted to reduce energy by 50% Renewable energy production to increase to 400 GWh/year Solar panels deployed in heat water for heating and municipal facilities Improved use of cogeneration, biomass and geothermal energy
<p>2013 NANTES</p> <p>Nantes (France) is a shining example of how a city can be made more sustainable. It has plans to create an "Urban Green Grid" by using a shared network of solar panels and implementing more eco-efficient buildings such as District Heating and solar energy.</p> <p>NANTES IN NUMBERS:</p> <ul style="list-style-type: none"> Greenhouse gases to be reduced by 20% by 2020 and by 20% by 2025 District Heating network to be expanded from 14 km to 114 km The new District Heating network will heat 20% of houses by 2017 The District Heating system will be 41% supplied by waste 40.2% of social housing on the network will receive a better heating bill 	<p>2014 COPENHAGEN</p> <p>The beautiful city of Copenhagen is known as being one of the most environmentally advanced in the world. Its District Heating system sets the global standard and is a proven way of being consistently energy efficient, low cost and making use of renewable resources such as geothermal.</p> <p>COPENHAGEN IN NUMBERS:</p> <ul style="list-style-type: none"> More than 98% of heat demand is covered by District Heating A network of 1,200 km provides heat for 200,000 households The system generates 20% less CO₂ emissions than other heat production methods 1.7% of the heat generated is from emissions from biomass and biogas A Climate Plan outlines intention to further reduce CO₂ by 20% by 2015 	

Based on research from a variety of sources, this section took the difficult issue of funding head-on. Using ground-breaking newly published academic research, it was demonstrated that the cost of inaction was far higher than switching to district energy.



RETURN ON INTEGRITY

FAST FINANCIAL RETURN; LASTING ETHICAL IMPACT

- GETTING CHP STARTED
- CITY CO₂ FOOTPRINT
- ENERGY PLAN
- CHP FEASIBILITY STUDY
- ENGINEERING BLUEPRINTS
- FINANCING SCHEME
- IMPLEMENTATION

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It is estimated that District Heating can decrease Europe's energy consumption by 7%, cut use of fossil fuels by 9% and reduce CO₂ emissions by 13%, while still supplying the same energy output. Surveys also show that one quarter of Europe's population lives in areas that have the potential to be supplied by District Energy, or whose existing systems can be expanded.

NO EASY TASK
As with any large-scale engineering project, District Heating presents certain challenges. These include logistical and structural difficulties in linking networks with utility suppliers, power plants and other potential heat sources, developing an effective metering and tariff system, minimizing disruption when laying down new infrastructure, and replacing individual boilers with compatible District Heating units.

Fortunately, with District Heating there is a lot of real-world experience available that can help District Heat these challenges as they are addressed, managed or even turned into advantages. It is also important to view these challenges in the context of the alternatives: our heating infrastructure is old, inefficient and built around fossil fuels. District Energy provides a proven path to make better use of our existing energy sources, reuse waste energy and bring new renewable sources into play, all of which adds up to sound financial and ecological sense on a nationwide scale.

SIGNIFICANT PAYBACK
A look at the bigger picture helps to put all this in perspective. The EU wastes a staggering 500 billion of potentially usable energy each year, which is where District Energy comes in. District Heating systems are proven to be exceptionally cost-effective through a combination of reducing costly energy wastage and lowering the amount of expensive fuel the EU needs to import to make up for its energy deficit. By doing so, District Heating systems would quickly pay for themselves and go on to deliver significant returns for the consumer as a whole. In fact, at current energy import prices the direct socio-economic payback is thought to be as little as two to three years. It is estimated that District Heating has the potential to reduce the amount the EU spends on heating by as much as 15% by the year 2050. That represents a huge saving of 14.8 billion of fuel prices remains as forecasted in the Energy Roadmap 2050 report. Even more importantly, implementing District Heating will also transfer money from energy imports to investments in distribution pipelines, CHP plants, geothermal, solar thermal, industrial waste heat and waste incineration.

Not only does this all translate into major benefits for the environment (doubling District Heating across 32 European countries could save 400 million tons of CO₂ a year, according to the European

HOT FACTS DISTRICT ENERGY IN FIGURES	
EU energy wastage:	€500 billion annually
Doubling DHC EU penetration:	100 million tonnes CO ₂ emissions
EU heating bill:	€14 billion saved by 2050
Payback time:	2-3 years
Job creation over the next 35 years:	200,000 jobs

Commission), but a huge amount of local industry would be generated in the process, creating an estimated 200,000 new jobs over the next 35 years.

JOINED-UP THINKING
At a more local level, District Heating networks have the unique capability to build upon existing infrastructure, utilizing the mesh of pipes and cables that already lie underneath cities. Developers do not always take this into account, missing valuable opportunities to combine investment with integrated planning initiatives or utility upgrades, such as new phone lines, that would help share costs and limit disruption. From an investor's perspective, this can mean significantly lower capital costs and, consequently, a much more attractive investment opportunity.

A SCALABLE PLATFORM
Local and national governments need to balance a huge range of competing issues when budgeting limited public funds. Yet energy planning, at both municipal and higher levels, is fundamental to the growth and security of any industrialized economy. One of the great advantages of District Energy is that it can make a strong impact at a local level. It does not require nationwide upheaval. Where possible, towns and communities can themselves elect a more efficient and sustainable way to heat homes and manage natural resources. In this way, it is possible to implement District Heating both democratically and progressively, growing the

network to include new cities and regions as benefits and savings begin to take effect.

THE TIME IS NOW
With fossil fuel costs rising and supplies dwindling, the need to update our energy infrastructure is an unavoidable and inevitable fact. We need systems that accommodate fuel diversity and especially the incorporation of renewable energy. We also need to stop the wastage by recovering and reusing existing energy, regardless of source.

To help achieve this, District Heating systems are becoming more commercially competitive to generate momentum with local authorities, investors and the general public. This has been driven by a deeper understanding of the advantages District Energy can provide, which in turn has led to exploration of how implementation costs can be lowered (via government grants and more integrated planning schemes, for example), how the system can generate a better rate of return for investors and how the benefits can be communicated to end-users.

In spite of the challenges that District Heating presents in its initial stages, it remains the best answer to many of the energy issues facing us today. Its expansion and development will not only help us achieve greater energy efficiency, but will also make us less dependent on expensive energy imports, more economically competitive and a world leader in the fight against climate change. ■

WE'RE NOT STARTING FROM SCRATCH
Today, 50 million people in Europe have their homes heated by District Energy and approximately 27% of the population lives in regions that have at least one District Heating system. By expanding existing capacity to help efficient technology can help us become energy independent - and protect our fragile environment.

MARKET POTENTIAL
The amount of investment in District Heating in the EU is limited and currently represents only 9% of the total heat demand. This share is likely to increase significantly compared to its competitors (such as natural gas), which means there is vast potential for expansion.

WASTED OPPORTUNITY
Less than 1% of the energy generated in waste-to-energy plants is recovered as electricity or heat. Better technology and more plants are essential, especially as almost 100 million tonnes of non-recycled waste is deposited in landfills.

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Danfoss is promoted only on the back cover of the publication, explaining how the company is a thought leader in the innovation and engineering of low carbon technologies for heating and cooling the built environment.

DANFOSS- AT THE CORE OF CLIMATE & ENERGY

MAKING MODERN LIVING POSSIBLE

For nearly 80 years, Danfoss has been making modern living possible through Climate & Energy solutions that cover a diverse range of everyday applications. Now more than ever, Danfoss is using its innovation leadership and engineering skill to create systems – including District Heating – that not only deliver superior performance but also environmental compatibility.

The founder of Danfoss, Mads Clausen, was a visionary entrepreneur who showed a great respect for natural resources. His belief was simple: on the one hand, that energy could be used efficiently with minimal waste; on the other, that money saved today is the best foundation for investment in tomorrow's energy saving technologies. And history has proved him right.

Today Danfoss products are used at the core of literally thousands of applications, buildings and projects worldwide, where they identify make a vital difference to efficiency, performance and the environment. More specifically, our technologies help make conduct and modern consumer possible through cooling and heating domestic and commercial buildings; preserving and transporting food; controlling speed in electric motors; automating

A DISTRICT ENERGY PIONEER
Launched in 1991, Danfoss District Energy (then called District Heating) has been at the forefront of defining District Heating engineering for almost 25 years. An independent division within the Danfoss Group, we are the world's largest supplier of District Energy solutions, heat exchangers and automatic controls for applications within residential, public, and commercial buildings. Our total solution approach, with local offices worldwide, enables us to offer a comprehensive range of systems from a single source.

A BRIGHT, SUSTAINABLE FUTURE
We have a vision for the future of modern living: a sustainable future where a better standard of living goes hand in hand with care of the wider environment. This vision drives our dedication to continuously improv-

ing the technologies and processes that make this future possible, not only for us but for communities across the globe. ■

Today, District Heating supplies 10% of the European heat demand and reduces CO₂ emissions by 11.3 million tons per year. However, annual CO₂ emissions would decrease by 51.7 million tons if the use of District Energy in Europe was doubled and the reliance on renewable energy increased!

Source: IPCC - Technology Roadmap (2006); IEA - World Energy Outlook (2006); IEA - 2050

A LEGACY OF INNOVATION
Originating in Scandinavia, Danfoss has come a long way from its humble beginnings: we now employ 24,000 dedicated professionals and have 135 sales companies and 76 factories operating worldwide. By driving innovation to the core of climate and energy applications, we enable the development of sustainable commercial, domestic and natural environments, improving people's living conditions and setting global standards for climate and energy optimisation.

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We provide leadership in our business through reliability, confidence and innovation – driving true customer satisfaction and solutions within Climate & Energy. Find out more at: www.ecopolis.danfoss.com

Roll-ups

Roll-ups and banners were developed for events and lobbying opportunities.



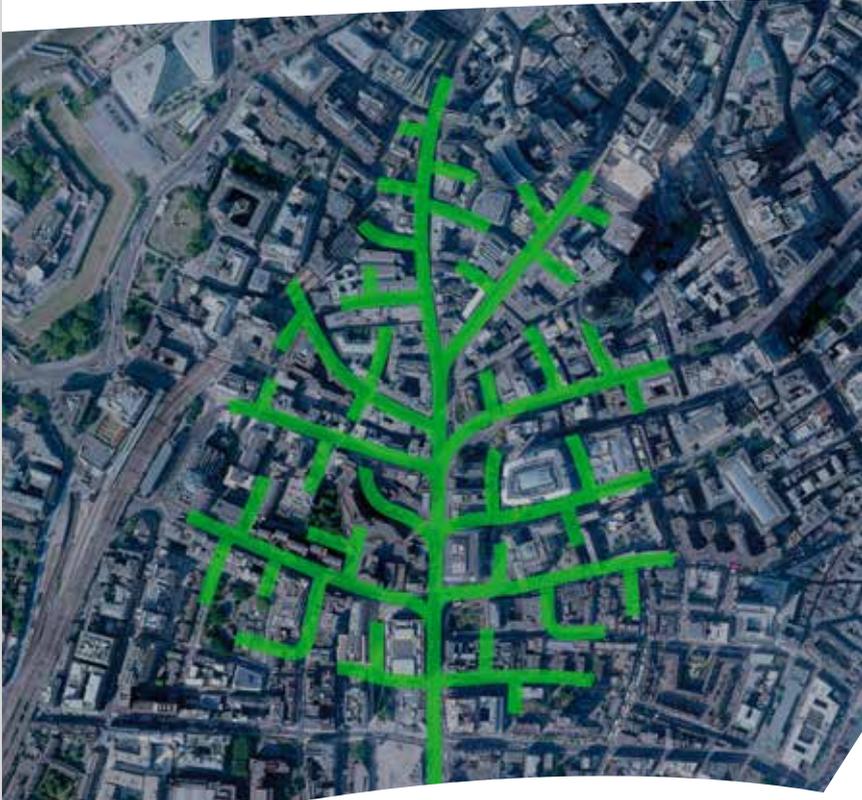
MAKING MODERN LIVING POSSIBLE



Bring greater sustainability to your district

District Energy represents a unique opportunity for the effective, phased decarbonisation of urban centres. As a proven infrastructure for heating and cooling buildings, District Energy can deliver real carbon savings today.

Danfoss is at the forefront of engineering climate and energy solutions that redefine the boundaries of energy efficiency and reduce CO₂ emissions.



MAKING MODERN LIVING POSSIBLE



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Bring greater efficiency to your district

District Energy is one of the most secure and efficient means of heating and cooling the built environment. By using 'heat' from power plants, District Energy provides a flexible, sustainable infrastructure compatible with renewable and traditional energy sources.

Danfoss is at the forefront of engineering climate and energy solutions that redefine the boundaries of energy efficiency and reduce CO₂ emissions.



Copenhagen
665,000 tons
Annual CO₂ saving

Some of Copenhagen receives clean, reliable, and affordable district heating.

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MAKING MODERN LIVING POSSIBLE



Bring greater security to your district

District Energy gives managed authorities and utilities the greater control in meeting the environmental needs of their buildings. Heat is produced by their own District Energy network that requires and allows seamless integration between energy sources.

Danfoss is at the forefront of engineering climate and energy solutions that redefine the boundaries of energy efficiency and reduce CO₂ emissions.



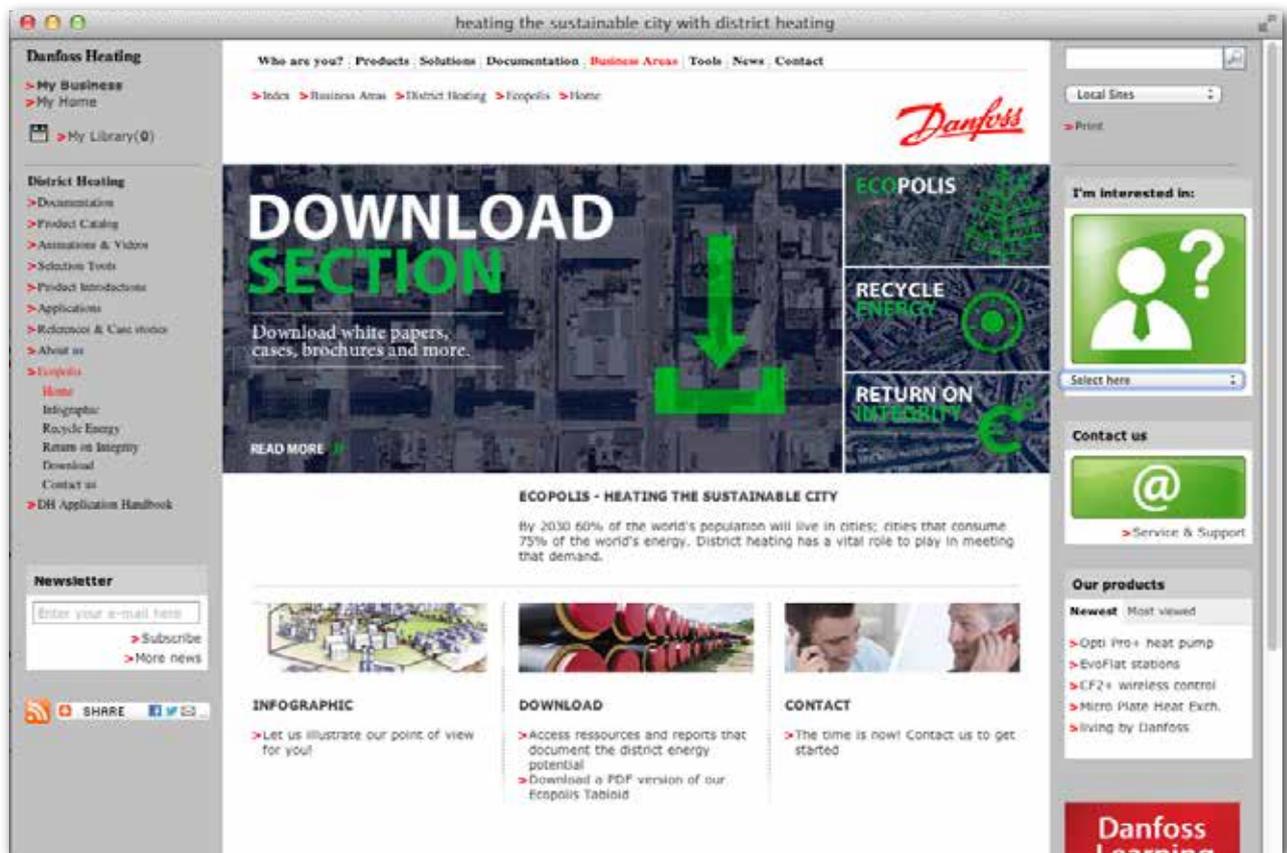
Helsinki
1.5 m tons
Annual CO₂ saving

District energy lets Helsinki reach a 15% - 25% reduction in CO₂ emissions.

districtenergy.danfoss.com

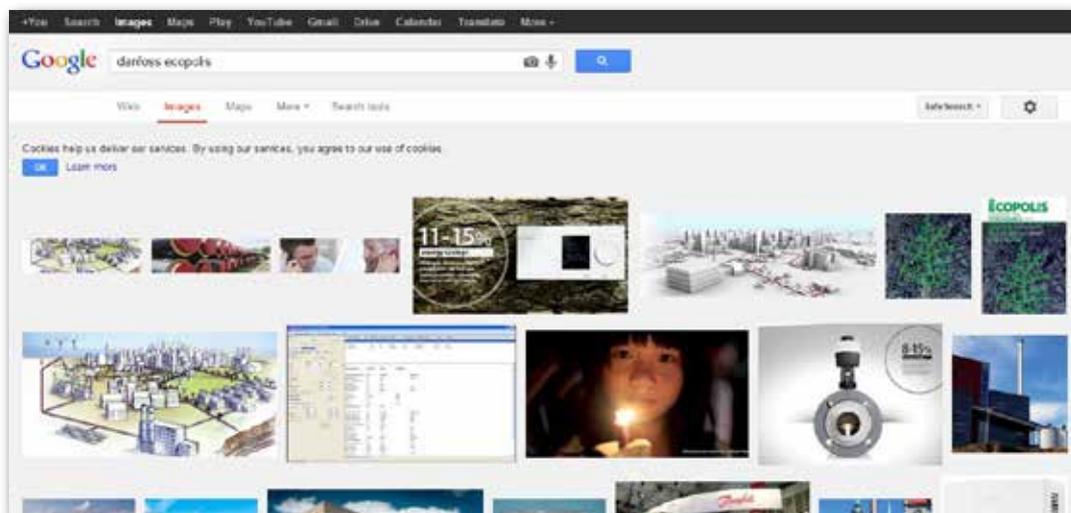
Website

Digital content integrated with the thought-leadership publication, providing additional information and opportunities to connect on Danfoss' corporate site.



Content assets go viral

Crucially, Danfoss was not protective about content since the whole point was to get this issue into the political and public consciousness. As such Danfoss was happy to supply interested parties with content for their own activities in support of district energy. In this way the content went viral, with individuals articles, imagery, infographics, cases, etc, being distributed globally and strengthening the district energy community.



Timing

The centrepiece publication was produced in May 2012. Other materials were developed during Spring/Summer 2012.

Result

New market creation is a long-term strategy; however, the short term results already demonstrate real impact:

- The 20-page newspaper has been reprinted three times in less than a year, showing huge demand. It has also been produced in five languages, underlining its international appeal.
- A massive 30% of readers visited the Ecopolis landing page, showing the efficacy of the Ecopolis publication in generating leads.
- Individual assets from the publication have been used in a variety of channels.
- In July 2012, for the first time ever, district energy was recognised as a part of the legal framework in the new EU Energy Efficiency Directive. This committed members to reduce energy consumption 20% by 2020 through the wider adoption of technologies like district energy. While this monumental achievement is down to the efforts of many parties, Danfoss' and CBC's campaign made a significant contribution in achieving this historic goal.

Customer Testimonial

"I deal with policy makers on a daily basis and they are not interested in technical marketing jargon. Ecopolis helped us capture the imagination and inspire people to take notice – that is the way to change policy."

Paul Voss

Head of industrial affairs,
Danfoss District Energy

"Ecopolis was a revolution for Danfoss. In a company of 23,000, our CEO doesn't use his time looking at brochures. So it tells you something that he singled out Ecopolis as one of the best communication initiatives the company has ever taken."

Thomas Heide Jørgensen

Marketing Manager,
Danfoss District Energy

