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Category 5
Best use of creative

Campaign
Ecopolis

Agency
Cross-Border Communications (CBC)

Client
Danfoss

Word-count
Summary: 187
Main submission: 998

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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 should win
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.

Main submission

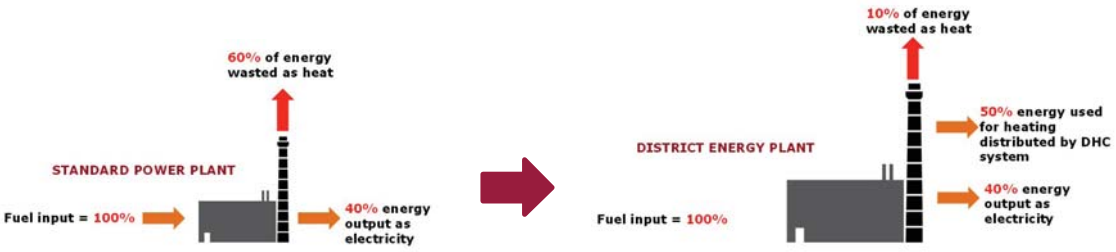
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Background

Danfoss is a world leader in the supply of components and systems for district energy (DE) networks – a.k.a district heating. 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 DE 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

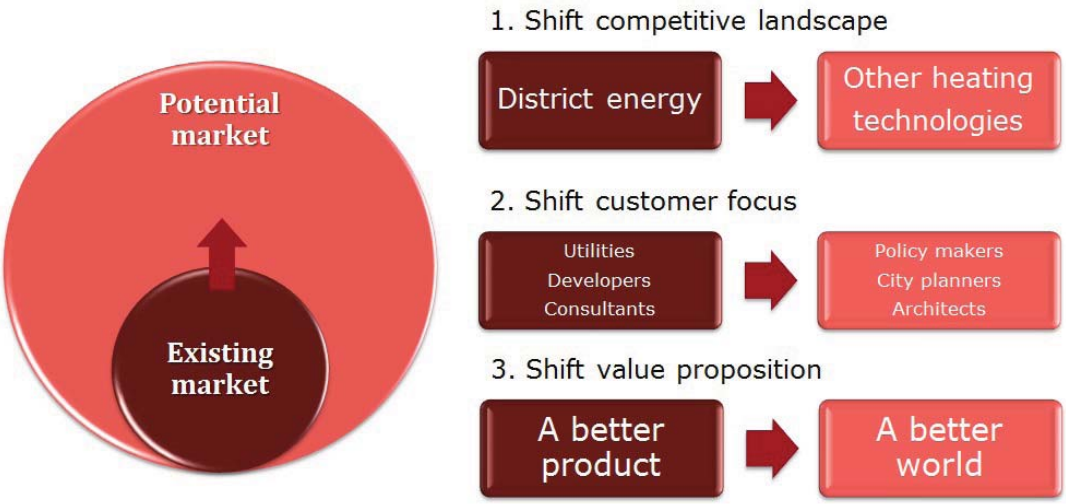
Target Group

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

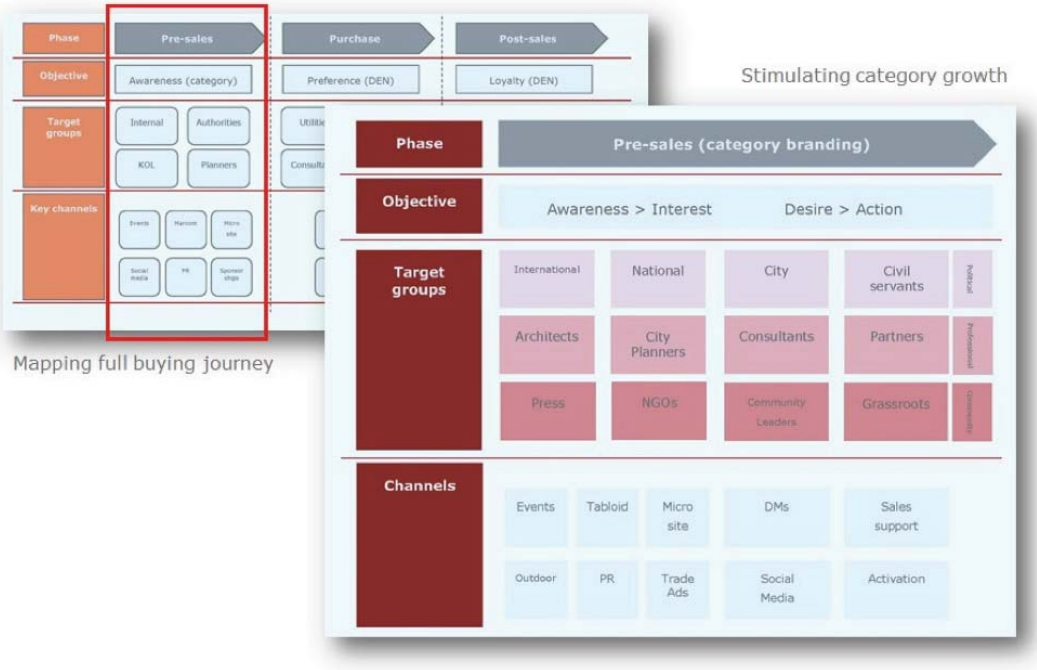
With the decision to focus on issue advocacy and category branding, a thought leadership strategy was taken in terms of content, with the aim to:

- 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

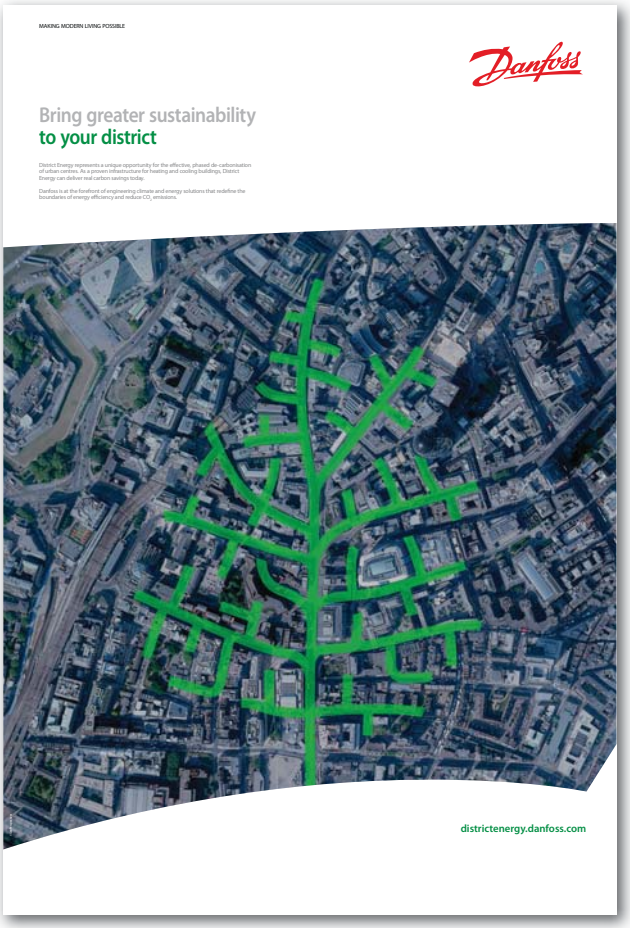
The overall buying cycle can be seen overleaf.

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".



Inherently universal, the concept was easy to understand globally. Specific city landmarks could also be incorporated to localise campaign visuals for particular countries.

Media

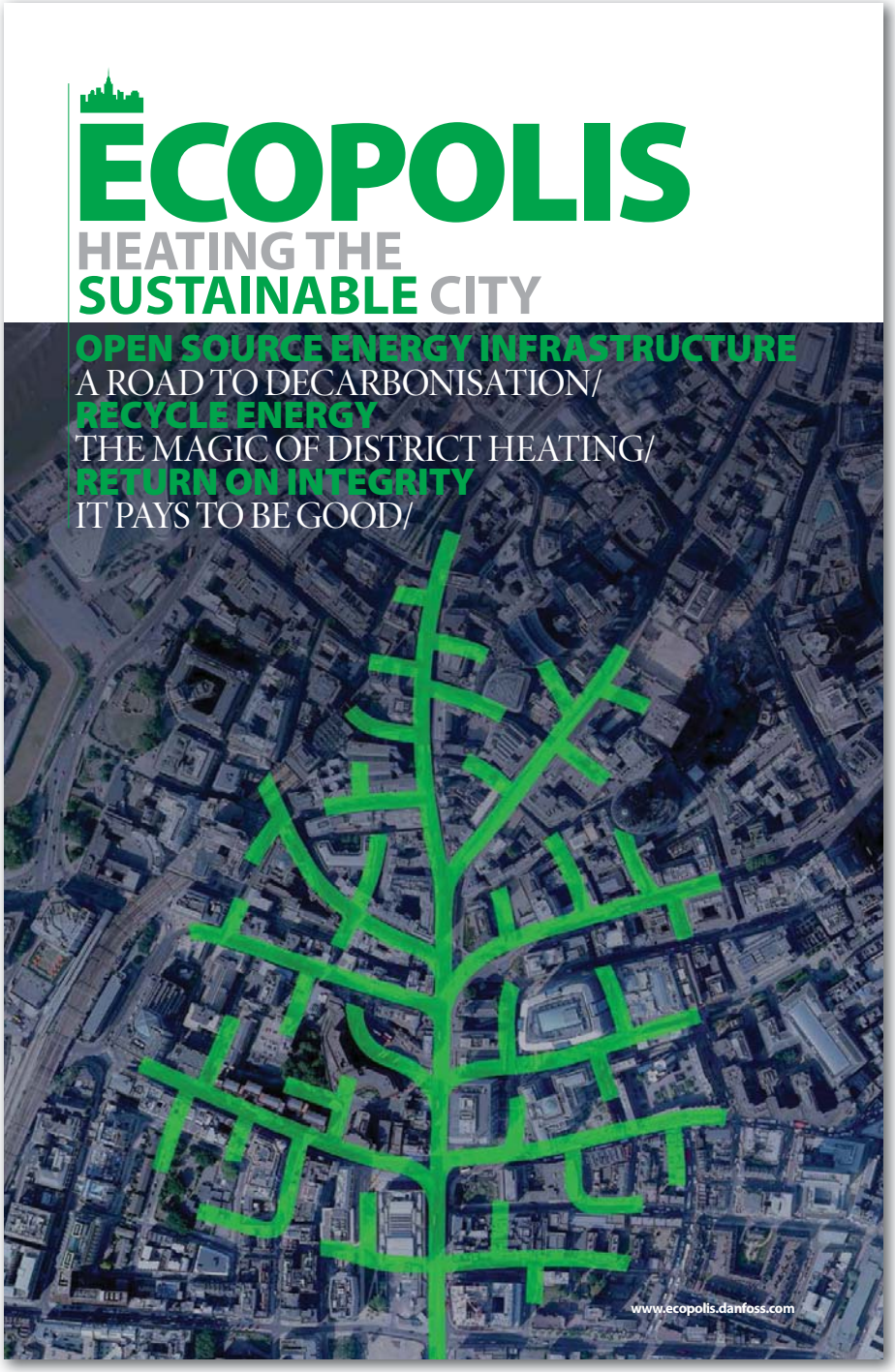
The centrepiece was a 20-page tabloid-format publication focused on issue advocacy and creating buzz around DE. It essentially acted as a content platform, containing articles, research, infographics, case studies, etc. Material for digital and live channels was also developed.

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

Power plants run at an efficiency of 34%. However, this can be raised to 90% through the implementation of a District Energy system.

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

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ECONOMICS OF MEGA CITIES

It's the story of our time – energy and the economy. Since the industrial revolution, economic development has been fundamentally dependent on fossil fuels. Yet the finite nature of these fuels, combined with the environmental threat they pose, means continued growth depends on reforming our energy system quickly.

Finding clean, sustainable sources of energy is of course central in reducing dependency on fossil fuel, and huge strides have been made in making renewable power more competitive. However, less well known is the fact that our existing energy infrastructure is needlessly inefficient and that there is enormous potential for gains in energy through recovery and recycling initiatives.

Indeed, the adoption of renewable energy is meaningless unless accompanied by a wide-ranging improvement in energy efficiency. In other words, there's little point in generating more sustainable energy if we continue to use that energy in an unsustainable way.

BROKEN PIPE

Recall the chilling pictures from 2010 of BP's ruptured deepwater well pouring millions of barrels of oil into the Gulf of Mexico. It's a fitting metaphor for power production. For every 100 mega-watts (MW) of electricity generated, 200 MW (enough to power 20,000 homes) pours out as waste. As industrial processes go, few are more inefficient.

This wastage was accepted when fossil fuel was cheap and plentiful (and global warming relatively unknown). Today the situation couldn't be more different or the need for change more urgent.

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

RECYCLED ENERGY

Recycling heat in this way is the basic principle behind District Heating (or District Energy), a system for centrally supplying residential and commercial heating. The concept is to capture waste energy from power production and use it to heat water, which is then distributed via underground pipes to homes and buildings for heating purposes. The system can be used for cooling too by using recovered energy to power air-conditioning systems.

The brilliance of the system is that it requires no "new" energy (fuel) to be used. Heating (and cooling) is provided simply by reusing energy that's already in circulation – and often wasted.

FUEL AGNOSTICISM

The engineering behind District Energy is remarkably simple and stable, making it highly flexible in terms of both scalability and compatibility with fuel sources. In fact District Energy networks can tap directly into renewable power sources such as wind turbines or biomass plants. In this way, it's possible to provide heating and cooling for thousands of people using only renewable and recycled energy.

CARBON NEUTRALITY

Recycling heat, through District Energy networks, opens the way to massively reducing carbon emissions, particularly in urban centres, where heat demand is most intense. These reductions are achieved without limiting economic and industrial output or endangering living 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 lets Copenhagen save 665,000 tons of CO_2 annually, while Helsinki saves 1.5m tons per year.

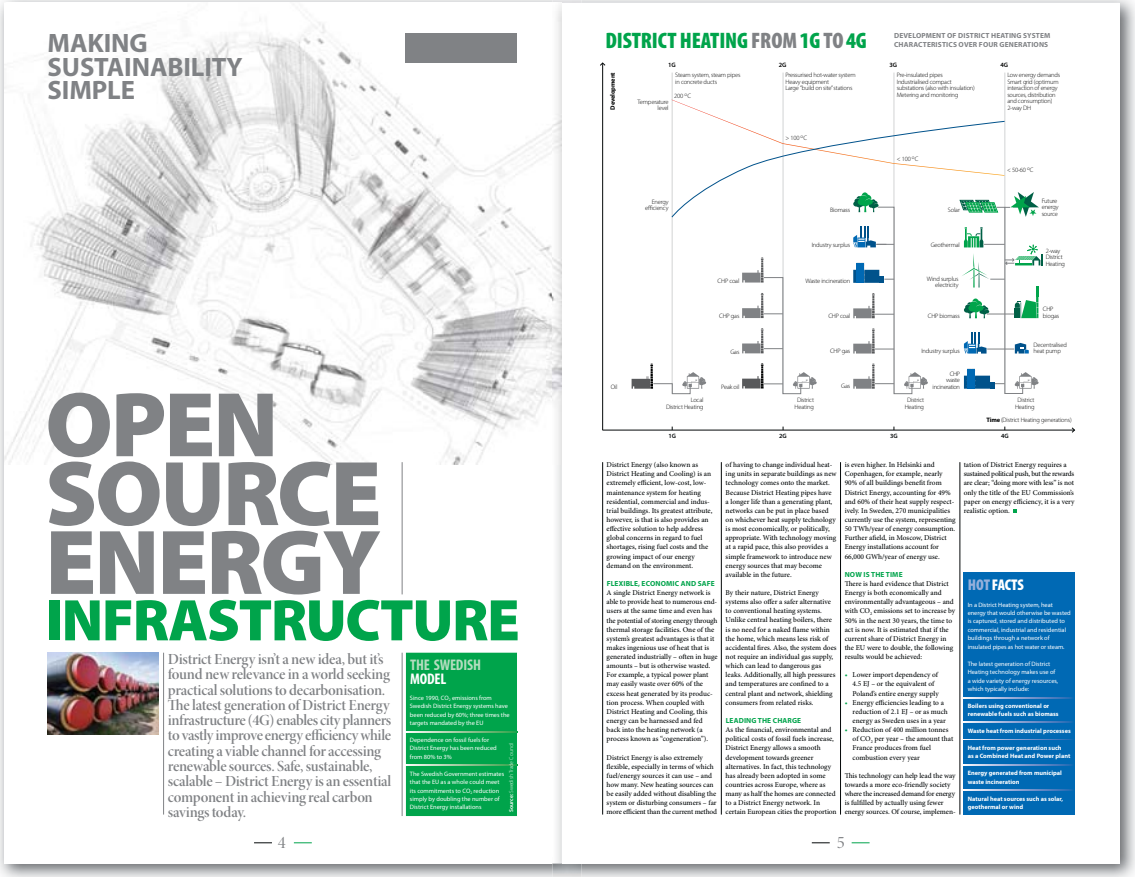
Reassuringly District Energy is able to deliver these benefits here and now. It is a proven, practical approach to controlled decarbonisation and meeting international pledges on emissions control.

ECOPOLIS

By 2030 60% of the world's population will live in cities; 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 vibrant, prosperous cities are compatible with environmental preservation. The vision of an Ecopolis – a carbon-neutral thriving cosmopole – is within our grasp if we dare to reach for it.

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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 1990, CO_2 emissions from Swedish District Energy systems have been reduced by 60%; three times the targets mandated by the EU

Dependence on fossil fuels for District Energy has been reduced from 80% to 3%

The Swedish Government estimates that the EU as a whole could meet its commitments to CO_2 reduction simply by doubling the number of District Energy installations

Source: read it @ Euroheat & Power Council

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DISTRICT HEATING FROM 1G TO 4G

DEVELOPMENT OF DISTRICT HEATING SYSTEM CHARACTERISTICS OVER FOUR GENERATIONS

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 is 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 demand 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 storing 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 easily waste over 60% of the excess heat generated by its production process. When coupled with District Heating and Cooling, this energy can be harnessed and fed back into the heating network (a process known as "cogeneration").

District Energy is also extremely flexible, especially in terms of which fuel/energy sources it can use – and how many. New heating sources can be easily added without disabling the system or disturbing consumers – far more efficient than the current method of having to change individual heating units in separate buildings 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 safer 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 confined to 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 homes are connected to a District Energy network. In certain European cities the proportion 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 50 TWh/year of energy consumption. Further afield, in Moscow, District Energy installations account for 66,000 GWh/year of energy use.

NOW IS THE TIME

There is hard evidence that District Energy is both economically and environmentally advantageous – and with CO_2 emissions set to increase by 50% in the next 30 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 4.5 EJ – or the equivalent of Poland's entire energy supply
- Energy efficiencies leading to a reduction of 2.1 EJ – or as much energy as Sweden uses in a year
- Reduction of 400 million tonnes of CO_2 per year – the amount that France produces from fuel combustion 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, implementation of District Energy requires a sustained political push, but the rewards are clear; "doing more with less" is not only the title of the EU Commission's paper on energy efficiency, it is a very realistic option.

HOT FACTS

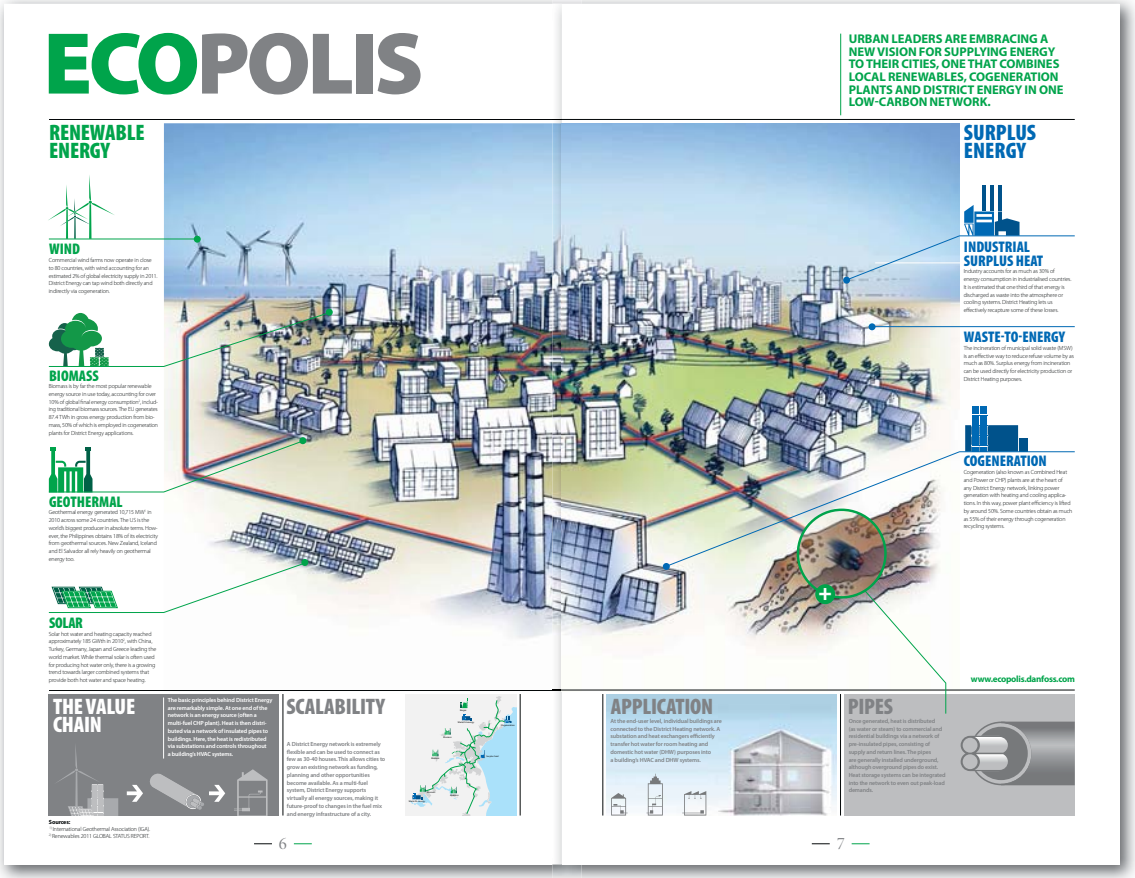
In a District Heating system, heat energy that would otherwise be wasted is captured, stored and distributed to commercial, industrial and residential buildings through a network of insulated pipes as hot water or steam.

The latest generation of District Heating technology makes use of a wide variety of energy resources, which typically include:

- **Boilers using conventional or renewable fuels such as biomass**
- **Waste heat from industrial processes**
- **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 wind**

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



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



Articles by respected independent energy journalists gave added credibility and insight, while putting the issue of district energy into context within the wider energy debate.

MAKING ENERGY ACCOUNTABLE

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

1 REALISING THE LOW-CARBON FUTURE

Written by: **Dafydd Ab Iago, energy journalist**

HOT FACTS

Currently, over half of the primary energy in many countries may be lost as waste heat on 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 exporting its expertise around the world, especially to high-growth markets.



Moving towards a low-carbon future requires a radical rethink of how communities and individuals live. But merely heading for targets laid down by governments to reduce CO_2 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 wasted energy use. Today, only around 40% of the fuel input into conventional power plants is converted to electricity. Analyses indicate 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 energies.

Unfortunately, many solutions to climate change remain unproven. At best, they may deliver results at 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 stored 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 payback could be as low as two to three years for heat distribution pipes placed in densely populated and developed urban areas.

By easing the replacement of fossil fuels with local renewable resources, District Energy also significantly contributes to reduced carbon emissions. Thanks to its thermal and fuel storage potentials, District Energy will play an ever more vital role for electricity systems in integrating and balancing a high proportion of variable renewables. ■



> *District Energy can simultaneously reduce emissions as well as boost the uptake of renewables in a controlled, secure and phased process.*

2 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 operated by E.ON AG caused continent-wide 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 pan-European power collapse 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 0.6% 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 18% of the world's electric generating capacity.

Despite this, the EU is a net importer of 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. Eurogas 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-recession levels within a few years.

EUROPE'S CURRENT CONSUMPTION

The latest European Environment Agency report, *Final energy consumption by sector* (CSI 027/ENER 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 6.6% between 2005 and 2009. Transport remains the sector with the fastest growing energy consumption (30.6% over the period 1990–2009) followed by services (29.7% over the period 1990–2009).

Over the same period, household final energy consumption increased by about 8.0%, while final consumption in industry fell by 27.9%. This decline in industry included a major fall of 14.7% during the period 2008–2009, when EU-27 final energy consumption decreased by 5.2%. On average, one person in the EEA countries used 2.1 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 soaring fossil fuel prices or unreliable due to the unpredictability of renewable energy.

> *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%.*

COGENERATION & CHP

Making energy systems more sustainable and secure is one of the greatest challenges for Europe. The potential is definitely 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 houses 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 since it relies on reusing heat lost 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 – our 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, rain, tides, 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 – 93,957 MW. A recent European Environment Agency report entitled *Europe's Onshore and Offshore Wind Energy Potential* confirms that wind energy could power Europe many times over.

District Heating is one of the few heating systems which is fully compatible with new renewable resources. It's even possible to use surplus renewables energy as a primary source for powering District Heating systems. For example, instead of turning wind turbines off during periods of excess wind, the 'surplus' energy can be used to directly feed 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-DH) 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 plurality 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 to ransom over the issue of energy supplies. ■

3 EUROPE AHEAD IN THE RACE TO SUSTAINABLE ENERGY

Written by: **Steve Hodgson, energy journalist**



> *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.*

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 emission 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. Reliance on fossil fuels will eventually be substituted by low- or even 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 nuclear 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 enormous progress is being made with both solar energy and biomass. Both electricity and heat markets are being transformed, slowly and at a price, by renewables. For the former, large-scale wind 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 – 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, renewable resources – 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 spiky but overall upward 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 on the supply side and the development of better heating controls in buildings on the demand side.

EMERGING POTENTIAL

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. Europe's District Energy industry is already exporting its expertise around the world. Most of the extensive 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 to host buildings is enormous. Refurbishment work is underway, but to date, limitations in public sector funding mean that progress in the region has been slow. Now, at least one CHP private equity fund has been established to channel investment to District Energy schemes in the region.

Perhaps more exciting is Asia. In China, for example, European District Energy and utility companies have started programmes to both refurbish and expand existing District Energy schemes. Now, the government of Hong Kong plans to install the territory's first District Cooling system as part of the redevelopment of an old airport site. Also in Asia, South Korea plans to increase its district heating capacity by a third over the next few years. In all cases, long-standing expertise from Europe should be involved. The European experience proves that moving towards a sustainable energy future and a high standard of living are by no means incompatible. Combining these two requires highly intelligent energy policymaking that maximises not only the use of local energy resources but also the efficiency with which local and imported energy resources are used. Having taken a lead towards sustainable energy at home, European energy companies now have the opportunity to export their experience and know-how around the world.



So, if Europe is to remain an economic power house in the long term, then better energy planning, reduced imports, better use of indigenous fuels and more efficient usage of all energy resources will be needed. Europe is already ahead; it now needs to make sure it wins the global green tech race. ■

Quotes from leading thinkers representing a wide cross-section of interests help add personality and authority.



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.



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 CO_2 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.

HOT FACTS
DISTRICT ENERGY IN FIGURES

EU energy wastage:
€500 billion annually

Doubling DHC EU penetration:
400 million tons CO_2 annual saving

EU heating bill:
€14 billion saved by 2050

Payback time:
2–5 years

Job creation over the next 35 years:
220,000 jobs

Source: Heat Roadmap Europe 2050

Despite these compelling benefits, District Energy struggles to get the attention and investment it needs to make these statistics a reality. This is often due to misconceptions about the cost and complexity of implementing a new heating infrastructure or a lack of understanding about the many advantages this unique heating concept offers.

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; minimising 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 illustrate how these challenges can be 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 this all in perspective. The EU wastes a staggering €500 billion of potentially usable energy each year, which is where District Energy makes a crucial difference. Over the longer term, 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 economy as a whole. In fact, at current energy import prices the direct socioeconomic 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 11% by the year 2050. That represents a huge saving of €14 billion if fuel prices remain 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 404 million tons of CO_2 a year, according to the European Commission), but a huge amount of local industry would be generated in the process, creating an estimated 220,000 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, utilising 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 industrialised 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 diminishing, the need to update our energy infrastructure is an unavoidable and inevitable fact. We need systems that accommodate fuel plurality 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, 60 million people in Europe have their homes heated by District Energy and approximately 17% of the population lives in regions that have at least one District Heating system. By expanding existing networks this highly efficient technology can help us become energy independent – and protect our fragile environment.

MARKET POTENTIAL

Market penetration for District Heating in the EU is uneven and currently represents only 9% of the total heat demand. This share is still relatively small compared to its competitors (such as natural gas), which means there is a vast potential for expansion.

WASTED OPPORTUNITY

Less than 50% of waste incinerated is waste-to-energy plants is recovered as electricity or heat. Better technology and more plants are needed, 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 investments 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 silently make a vital difference to efficiency, performance and the environment. More specifically, our technologies help make comfort and modern convenience possible through: cooling and heating domestic and commercial buildings; preserving and transporting food; controlling speed in electric motors; automating industrial processes; controlling hydraulics for construction vehicles; and supporting the production of renewable energy – as well as countless other applications. All while maximising efficiency and performance and reducing energy use and CO_2.

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 125 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.

A DISTRICT ENERGY PIONEER

Launched in 1991, Danfoss District Energy (then called District Heating) has been at the frontier of defining District Heating engineering for almost 25 years. An independent division within the Danfoss Group, we are the world's biggest supplier of District Energy substations, 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 improving the technologies and processes that make this future possible, not only for us but for communities across the globe. ■

Today, District Heating supplies 9-10% of the European heat demand and reduces CO_2 emissions by 113 million tons per year. However, annual CO_2 emissions would decrease by 517 million tons if the use of District Energy in Europe was doubled and the reliance on renewable energy increased[1].

Sources:
[1] DHC+ Technology Platform (2000): *District Heating & Cooling: A vision towards 2020 - 2030 - 2050.*

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

Danfoss

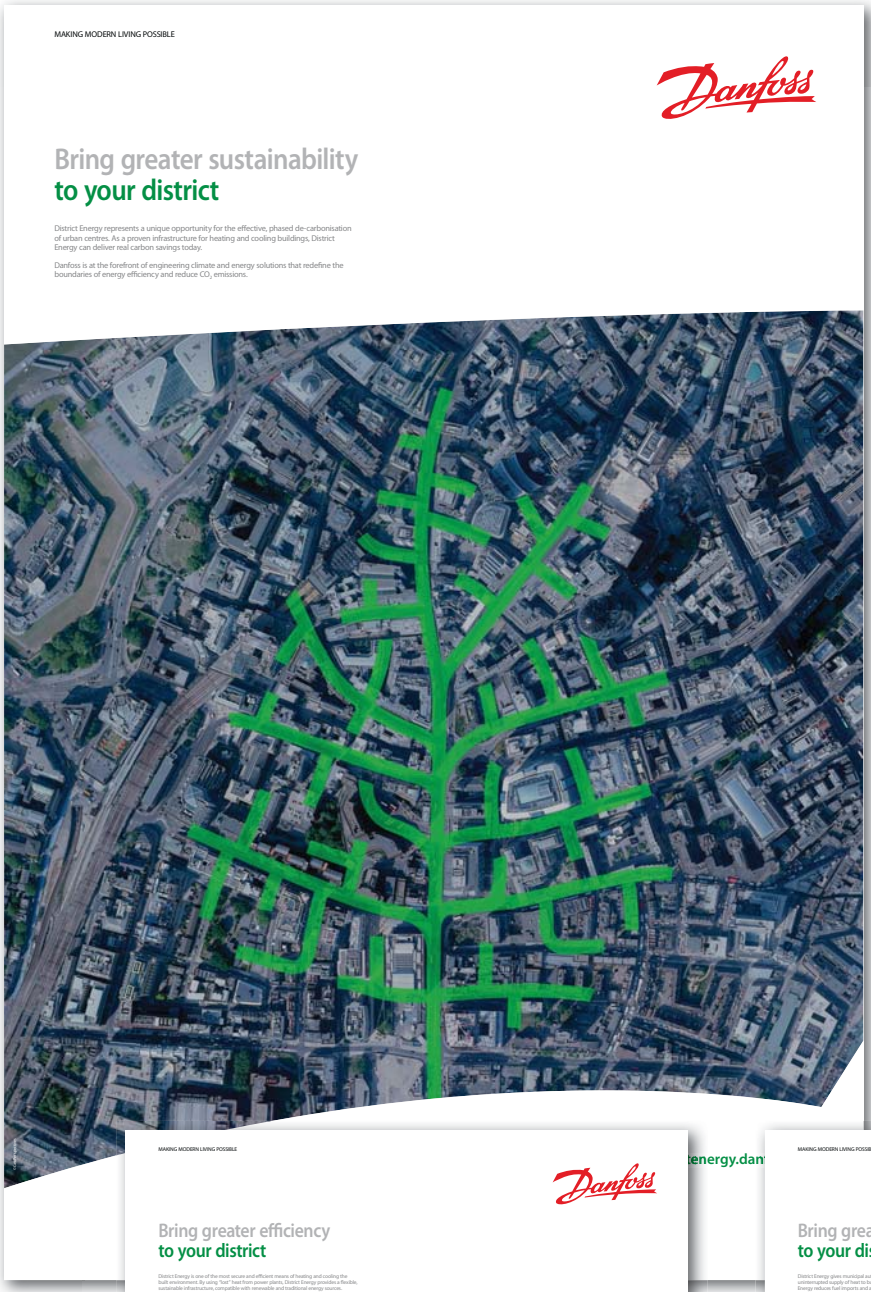
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Roll-ups

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

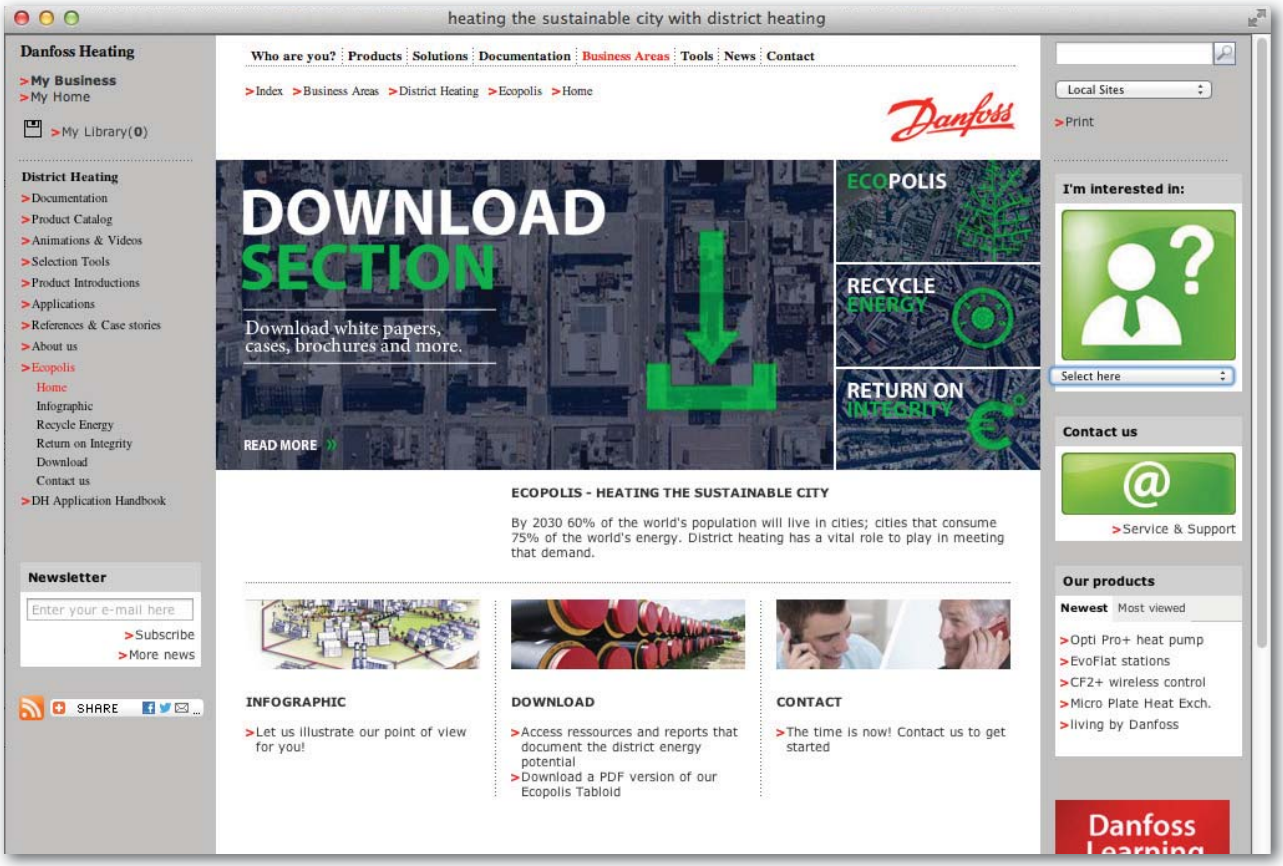




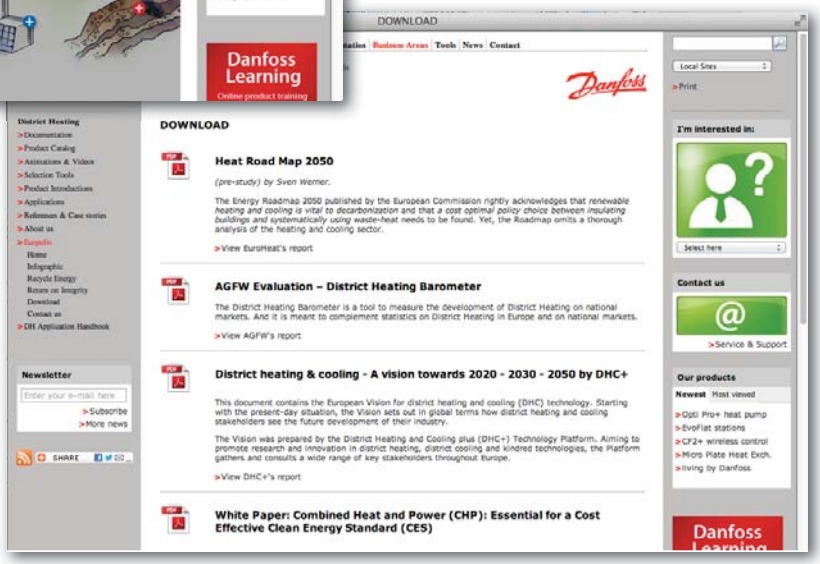


Website

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

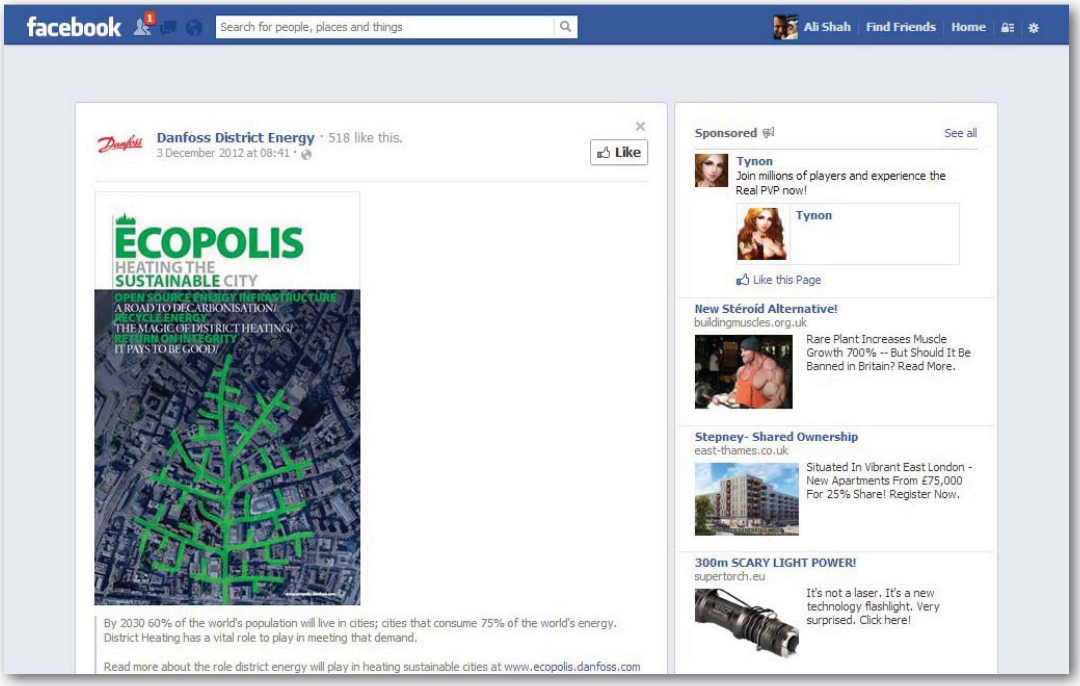


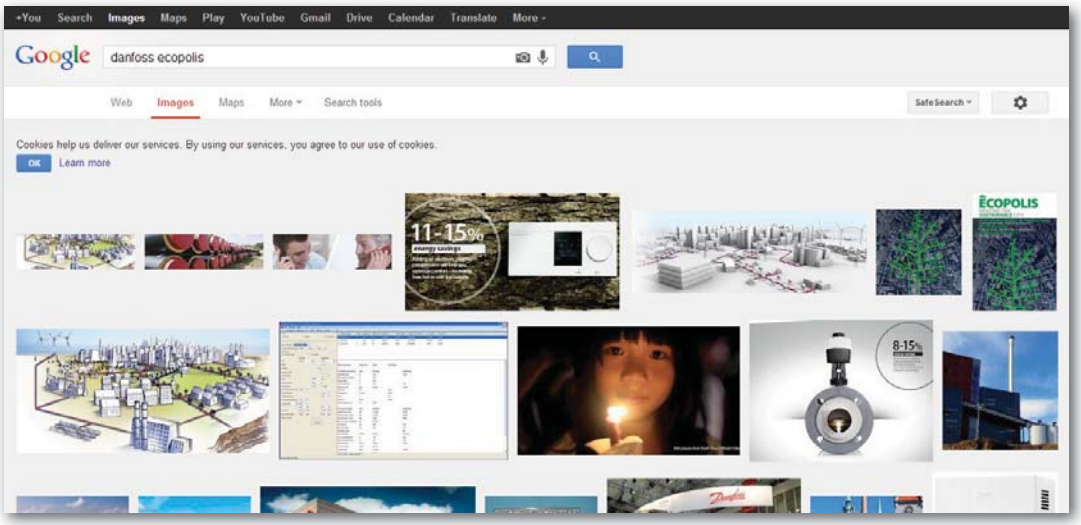




Content assets go viral

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.

Budget (Confidential)

These details were provided to judges in the original submission but are commercially sensitive and therefore confidential.

Result (Confidential)

These details were provided to judges in the original submission but are commercially sensitive and therefore confidential.

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