a strategy for sustainable heat

- **a third of the UK's carbon dioxide emissions come from heat**
- **half of all energy in the UK is used to produce heat**
- **typically two thirds of the energy consumed in large electricity plants is lost as waste heat**

- **why is there no strategy for producing heat more sustainably?**

Picture three scenes. In the first you settle back into a hot bath with a mug of soup. In the second it is mid summer and the office oppressive, air conditioning is the only way to ensure any work is done. A large factory extracting sugar from beet using boiling and hot air is the third.

What do these pictures have in common? Hot water, radiators, heating food, keeping cool, industrial boiling and drying… all are dependent on heat.

Heat is so much a part of the fabric of our everyday lives that we simply take it for granted. Most of the UK's heat comes from burning North Sea gas. This supply has been so cheap and abundant that we have never had to be sparing in the amount of heat we use. But the energy future facing us now is quite different. As concern about the UK's contribution to global warming mounts, a heating economy that relies on carbon-emission producing gas, is no longer viable.

Even so, home-owners, industry, developers and planners rarely consider more sustainable sources of heating. As indicated by the recent Commons Trade and Industry Committee 'low-carbon heat production is the Cinderella of energy policy'. With heat responsible for three-quarters of our energy use outside transport it is vital that we turn our attention to sustainable sources, which could provide up to a quarter of our annual heating needs by 2016.

what can sustainable heat deliver?

Sustainable heat alternatives can go a long way to addressing the government's energy policy aims:

1. **Help reduce carbon dioxide emissions: almost a third of the UK's carbon dioxide emissions are from heat**, equal to those from electricity. Converting only four per cent of domestic users to renewable heat would save one million tonnes of carbon.

2. **Increase energy security: almost 60 per cent of the gas we use in the UK is to provide heating** but the security of the gas supply and uncertain prices are an increasing concern. Sustainable heating will reduce our gas dependency, as it uses a wide variety of fuels – many from within the UK.

3. **Increase competitive markets:** Ofgem, the electricity and gas regulator, has no remit to address competition in the heating market beyond gas. Unlike electricity and transport fuels, **heat markets are naturally distributed, presenting the opportunity for the development of a diverse and competitive market.**

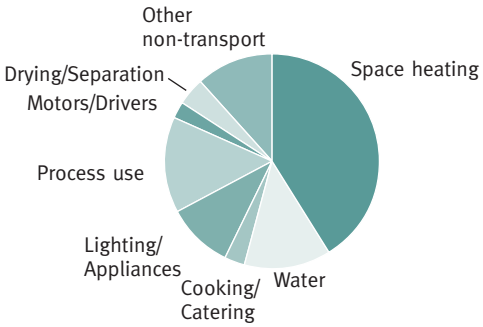
4. **Reduce fuel poverty: reducing heat demand and waste heat could potentially decrease heating bills by an average of 26 per cent.** This would help the two million fuel poor, whose numbers have swelled with the increase in consumer gas prices since 2003.

what is sustainable heat?

Sustainable heat is heating and cooling from low carbon measures and renewable sources.

why don't we use sustainable sources of heat more?

- **Heat is a hidden energy use:** typically, energy use information does not highlight the high percentage that heat accounts for. Statistics that focus on heat are hard to come by and insufficient in comparison with electricity statistics.
- **Heat is a policy and regulatory blindspot:** the energy regulator, Ofgem, currently has no remit for looking at heating supply beyond gas. There is no framework for supporting the supply of heat from alternative sources.
- **The market is currently small and awareness is low:** with low awareness and a lack of information on sustainable heating technologies consumer demand is too low to drive the market.
- **Upfront investment costs are high:** homeowners and business often find it difficult to finance the initial investment costs of sustainable heating systems, even though the payback is often within reasonable periods of time.



Heat uses 76 per cent of non-transport energy

developing a strategy for sustainable heat

We have set out below requirements for an effective heat strategy. It should:

- **Put energy conservation and efficiency first:** as energy efficiency and demand management are often the most efficient forms of carbon saving, any support for low carbon and renewable heat should be coordinated with efforts to ensure that high levels of efficiency have already been achieved.
- **Be comprehensive:** only a coordinated package of measures can address the current barriers to growth. A comprehensive heating and cooling strategy should include a number of reinforcing instruments that provide both the mechanism of change and the optimum long-term market conditions. It must be considered as a comprehensive whole, and not as a shopping list of discrete measures.
- **Provide stability over the long-term:** a framework that delivers support over a reasonable investment horizon will avoid the vagaries of government funding rounds and present the stable investment conditions for long-term growth.
- **Be target-based using reliable statistics:** ambitious and verifiable targets need to be set that will be the guiding line for the measures to be taken. A pre-requisite for these targets will be more reliable and comparable data.
- **Reward carbon reduction:** linking incentives to volume – of fossil energy saved or low carbon and renewable energy supplied – ensures that the most effective and efficient measures receive the maximum encouragement.
- **Be simple and effective, for applicants and the public sector alike:** administrative procedures should be as simple as possible to minimise transaction costs. The burden of transaction costs will be most acute for the domestic sector and small-scale technologies.

- **Be capable of addressing capital barriers:** capital can be a barrier to uptake in all segments of the market, but is most acute in the domestic and public sector. Incentives must have the flexibility to recognise the benefits delivered over the operating life of a measure and equate these benefits to up-front capital support.
- **Be sustainable:** any strategy must be based on the principles of maintaining enforceable standards of environmental sustainability for all heating sources, and ensuring that the measures introduced will contribute to significant net savings in lifecycle greenhouse gas emissions.
- **Be consistent with European standards:** any technical parameter linked to eligibility for financial incentives should be based on European standards and certification procedures, where they exist, and, for small scale systems, to the Building Research Establishment's and the Department of Trade and Industry's emerging Microgeneration Accreditation Scheme, to avoid creating small and isolated markets.
- **Be open to innovation:** qualification for support must be flexible to provide competitive access for all products, with appropriate incentives to tackle the barriers to new market entry.
- **Be flexible and responsive:** any incentive scheme needs to be able to adjust to market development and have minimum impact on the market.
- **Support skills:** for a market to flourish, engineer and technician training in sustainable heat design, installations and maintenance is essential. Targeted training and recruitment is needed until the market framework is correct, with key players thus ensuring there is no skill shortage.
- **Promote leadership, starting with the public estate:** public buildings should act as an exemplar of what can be achieved with sustainable heating and cooling, but should also include consideration for the replicability of the technologies elsewhere. This would help boost the market and drive costs down. The government needs to continue and deliver on its commitments on this. Champions in the private sector should also be recognised and encouraged.

The following strategy is supported by these organisations:

All Party Parliamentary Group for Intelligent Energy

MICRO POWER

the Ashden Awards for sustainable energy

NEA

chpa

THE NATIONAL TRUST

CLA Country Land & Business Association

PRASEG

econergy

REA

eden project

regensw

energy saving trust

RES

RIBA

Friends of the Earth

RSPB

froling

renewables

green alliance...

Solar Trade Association

Ground Source Heat Pump Association

HHIC

Sustainable Energy UK

ice Institution of Civil Engineers

ICOM Energy Association

WORCESTER Bosch Group

I MECH E

WWF

a strategy for sustainable heat

This is a holistic, simple strategy comprising a few key supporting measures. It is a coordinated package of complementary actions.

Stable, long-term incentives must be introduced.
The core element of a heat strategy should be the introduction of a **stable, long-term incentive framework** built on the fundamental principle of rewarding the delivery of renewable and low carbon heating and cooling services and products.

This incentive framework should:

- **Be output based,** to reflect the carbon and energy security benefits of reducing fossil-fuelled heating and cooling.
- Provide **comprehensive market coverage** with the **flexibility** to offer upfront **capital and project development support** where necessary in exchange for revenue benefits.
- **Recognise the challenge of bringing forward alternative new products** in a market dominated by fossil heat supply and recognise the value of innovation and energy efficiency.

This means that the framework will need to provide a **direct revenue incentive** for the majority of heating and cooling options. Reward could be based on metered heat output. **Capital support** should be offered as an alternative for demand management and domestic supply-side measures on the basis of rated heat output. Work needs to start immediately to identify and implement the most appropriate mechanisms to deliver this framework. (DTI)

At the same time, and to provide continued support for heating and cooling technologies, the following measures will be needed. We believe that many of these can be implemented within a short space of time (less than18 months).

Objectives must be set, and progress measured.
A clear government target for renewable and low-carbon heating and cooling supply across the economy is needed. The government could look to use the incoming Climate Change Bill to set a target, and commit now to using its powers under the Climate Change and Sustainable Energy Act to set robust targets for microgeneration.

Enabling action should be taken now.
Local authorities should be expected to develop a local energy strategy to include heating and cooling. This should specify what type of energy distribution network is appropriate for a given locality. In areas with sufficient heat density, this will be district heating using heat demand in public sector buildings to underpin development. (DCLG)

Firm direction should be given through the planning system. The requirement for incorporating much higher standards in building regulations for thermal performance of buildings and structures, together with the need to incorporate onsite renewables and low carbon energy sources in major new developments, **outlined in the current consultation on Planning and Climate Change, should be implemented and enforced in full.** (DCLG, DTI)

Continued financial support should build on where we are. A number of measures already provide limited support for renewable and low carbon heat – the Low Carbon Buildings Programme, the Bioenergy Capital Grants Scheme, and the Energy Efficiency Commitment. Whilst not sufficient to realise the full potential of renewable and low carbon heat, these measures do play a role in building customer demand and supporting industry growth in the absence of a dedicated long-term incentive framework. To fulfil this role **these measures need to be properly structured and resourced to build confidence and capacity in the industry until a suitable mechanism is in force.** (DTI, Defra)

A level playing field must be established.
The industry as a whole, including government and Ofgem, needs to broaden its horizons beyond its current focus on gas. **The duties of Ofgem need to be redefined to ensure that it considers the impacts of its decisions on the heat market.**

Please see the full document 'A manifesto for sustainable heat' for more information.
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