Carbon Emissions Reduction Target April 2008 to March 2011

Ravenheat Manufacturing Ltd response to Defra's Proposals

As a manufacturer of domestic gas heating appliances Ravenheat have pioneered the introduction of energy saving condensing boilers, resulting in numerous awards for our innovation. We have also worked very closely with government bodies in developing the domestic gas boiler products required for commencement of the initial Warmfront scheme. Firstly we would like to comment in general terms about this before specific details regarding the consultation document. Prior to which we acknowledge the excellent work that has been done under the EEC programme and hope this will continue.

We therefore welcome CERT and its proposals, whilst we would contend that changes in consumer habits and that of the trade will not fundamentally change. For years the customer has relied heavily on advice given from the independent small trading CORGI gas installer. This personnel service is a key part of the market; customers rely on him/her for sound advice on all their heating and hot water requirements. Therefore, it is necessary to include all this sector of the trade in being able to offer sound advice and incentives to supply and fit energy saving products and services.

It is fact that a householder will go to a contractor for a gas appliance to be supplied and correctly installed by a qualified competent person/company, of which there are some 55,000 registered CORGI businesses with 120,000 registered operatives working within those companies. It is clear that it is a fragmented industry, considering this covers all persons qualified to fit and service domestic gas boilers, their help though is key to energy savings. Energy companies in the past have only sold energy, and there have to date been very few selling a total package. We do not think this will change much in the coming years if the energy companies do not pass on some form of incentive, so that they may bring the installing side of the trade with them. Installers have their own agenda when it comes to pricing jobs; being competitive and earning a living.

Partial Impact Assessment

Evidence based: Barriers to household energy efficiency

Small companies and individual installers need inducements to incentify households to choose the most efficient heating source when a replacement heating system is being considered. It could be argued that the customer needs no encouragement to replace an appliance with the highest efficient boiler once it is beyond its economic life. However, in the case of most families they will opt for a product with the least capital outlay, particularly if they are on a tight budget. Indeed, if the installer does not recommend the most efficient option purchase and its benefits, then they will inevitably go for a lower cost replacement product not being as efficient as it could be. If incentives and training are provided to encourage the best upgrade possible, the maximum energy saving would be achieved. It would mean that the installer may have to go through some quality training to ensure installations are carried out to a high standard, but at the same time it would also encourage the installer to keep up with the sale of energy saving systems through a programme of increased knowledge.

Annex 1

Appendix: Illustrative Mix of Measures

Table 1 and Table 2

These tables rate domestic A/B band rated boilers (exceptions) as a good option of carbon saving (we assume this is over and above older lower SEDBUK band rated boilers) and not from (**2.2 Savings - that they are now final scores**). However, **'measures below are open for consultation'**. This is an important sector as it delivers heat or electricity that is derived from '**renewables**'? However, these renewables require massive capital outlay and will only play a very small part in delivering energy savings now, but they are important. Having a league table of measures that are activated in different properties based on carbon saving and cost, particularly payback cost is an important factor. For instance nobody would ever consider installing heating measures without first considering all possible ways of fully insulating to the highest standard the building itself, so as not to loose heat.

Energy usage and the environment

We embrace all measures to reduce fossil fuel energy usage. There are at the moment many options to choose from renewables to nuclear etc. However, these options will move up and down a league table versus time, with we are sure other innovations to follow. The most important steps forward are those that reduce energy consumption now, thus limiting the effects of climate change which seems inevitable to one degree or another. One day it is fact that we will run out of certain masses of fossil fuels readily available to date. It is therefore important to adopt best practices available to conserve today with a view to our future usage.

Fuel Poverty

Having worked with fuel poverty groups and the government, we acknowledge the steps that have been taken to alleviate the hardship of fuel poverty to date in Warmfront and EEC etc. We hope that CERT can continue to contribute to reducing fuel poverty within the government's target. However, fuel prices and uncertainties of supply will dramatically affect this. Indeed, you could argue because energy is at present a limited resource, none of us as individuals are particularly fuel rich. As individuals we should be very concerned for the future, when considering security of supply along with fuel prices. It is therefore important that government recognize not only the fuel poor, which we applaud steps taken to date, but that of the average household as well. After all, lowered energy prices all round due to energy saving measures does reduce fuel costs and poverty in itself before any intervention takes place.

Innovation: 70% - 80% of Domestic Hot Water FREE

One energy source that has remained unquestioned and untouched is the wasted energy (hot fumes) from a gas boiler flue outlet to atmosphere. Ravenheat have, over the last 12 months designed and fully tested a system that will extract virtually all the heat from gas boiler fumes, with a net result of **5% extra saving** on gas and reduction in bills over and above traditional SEDBUK Band 'A' condensing boilers i.e. take the highest SEDBUK rate boiler, attach a Ravenheat **ENERGYCATCHER** System to the top of the boiler, and there will be an automatic reduction in gas bills due to the hot flue gases heat being transferred to a domestic hot water thermal store. This energy is then used through the boiler, or the thermal store to provide domestic hot water. The transfer of heat will work to heat the domestic hot water whenever the boiler is operating, either in domestic hot water mode or space heating (central heating). **This major development is of significant importance**, as firstly it can be fitted to most present day domestic gas boilers without any adverse effect on their emissions. Indeed, it does exactly the opposite; it reduces further the dirty gases which are presently omitted to atmosphere, while at the same time the boiler does not need to operate to provide domestic hot water. Even in the depths of winter when things like solar panels will not deliver energy gains; calculations based on information in CERT about solar indicate **ENERGYCATCHER** will deliver four times the saving of a solar system fixed to the model house type example in CERT with a gas boiler. **ENERGYCATCHER uses no energy whatsoever to achieve this!** It can also be fitted to an existing gas boiler subject to manufacturers consent. It is interesting to note that we consider payback time of 2 years, making this solution to energy consumption important, thus delivering **carbon emissions saving of 5%** as a significant step forward. Full production of this product and launch will be September 2007.

(*See illustrations on Ravenheat Energycatcher System*)

If we, as a responsible industry can now deliver a Band 'A' rated boiler plus **ENERGYCATCHER** with such a massive **extra carbon saving**, then think what a boiler replacement programme could do where some old boilers are only 60% efficient.

If we project this obvious form of heat recovery to every Band 'A' rated gas boiler within the Country, carbon savings are instantly and significantly achieved. We note that CERT will cover innovation activity, whereas **ENERGYCATCHER** is an invention that by using innovation and rethinking the way that we presently design our heating systems and heat our homes, it is also at the same time using traditional readily available materials to deliver these savings.

In any event, we feel as manufacturers, that we need a clear concise way forward to deliver energy saving methods on a well structured sound commercial basis, which will not be interrupted, or slow down the take up of measures to reduce carbon, if and when utilities meet their set targets? Which could be very easy to achieve? Measures do need to be in place to financially kick-start early on in the programme, maybe with reductions later.

Louis Pickersgill
Managing Director
14-Aug 2007

Savings using Energycatcher Coolflue

- Passive Heat Neutral Energy (FREE Heat)
- The energycatcher is efficient at extracting heat to water
- Extra heat is extracted from outlet fumes reducing them to as low as 23^{o}C (Normally flue gases are around 60^{o}C)
- Outlet flue fume temperatures in heating are no greater than 3-5^{o}C higher than the incoming cold water for domestic use.
- Result - extra boiler efficiency whenever the boiler is operating (DHW or CH). This efficiency is stored as thermal gain.
- Total overall savings in excess of 70% in domestic hot water mode.

Benefits of Energycatcher

- Fuel bills reduced
- Carbon saving 5%
- Pluming can be completely eliminated due to operation (thermal gain). Outlet fumes are too low to support water vapour.
- Less cold water usage
- Instant hot water delivery
- Payback of initial capital outlay within 2 years
- Delivers substantial heat savings (equivalent to solar) when there are no thermal gains due to poor weather.
- Compatible to work with solar systems

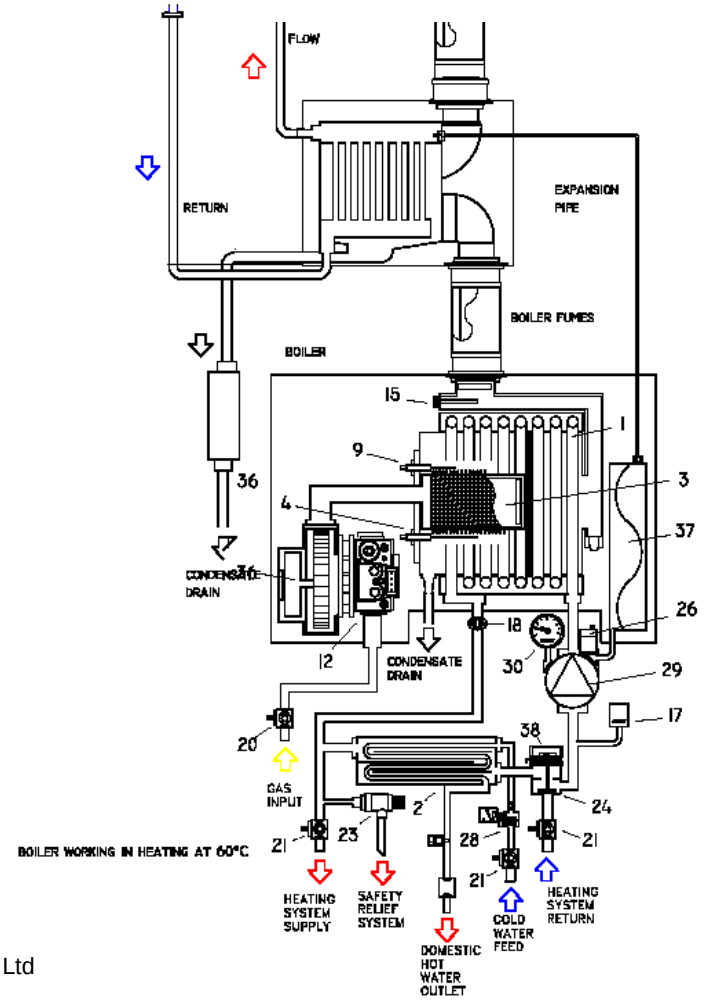
14.08.07

Benefits of Energycatcher

- Unlimited instantaneous hot water at increased domestic hot water output from a combi without firing up or running at full power.

- Delivers all year round particularly when heating and/or hot water is required in high demand winter months.

- In short energycatcher takes heat from the boiler exhaust fumes converting it to domestic store hot water at no extra cost.

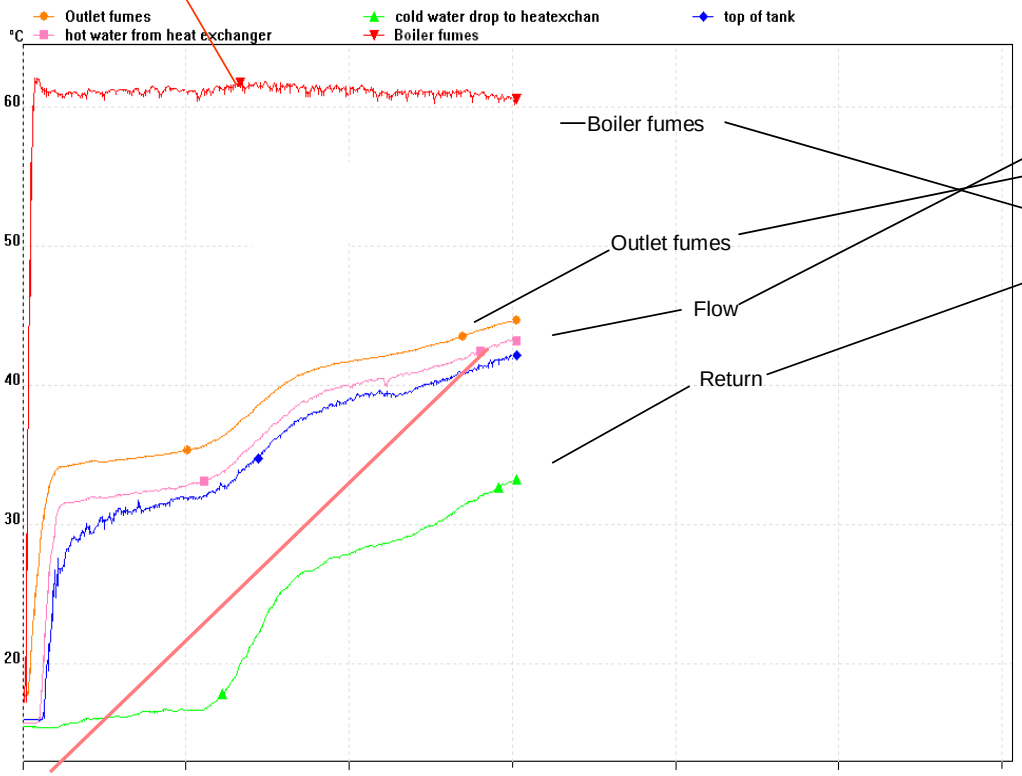


Energycatcher

CSI Low NOx Boiler

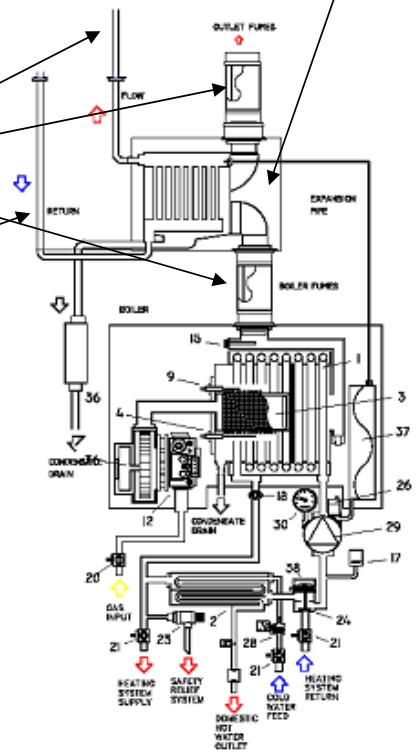
14.08.07

▼Normal fumes output from condensing boiler



■Stored hot water @ 45ºC collected transfer from heat by further cooling of boiler fumes

Energycatcher



CONDENSING BAND 'A' BOILER HEATING AT 60ºC

Neutral Energy Gain

No extra use of power to collect this gain of up to 3kW of energy presently wasted into the atmosphere

14.08.07