



**churchfield**  
green energy

# heating and plumbing

how to get the most  
from your system





## Contents

1.0	<b>Introduction.....</b>	<b>2</b>
2.0	<b>Understanding your heating system.....</b>	<b>2</b>
1.1	Oil or Gas.....	2
2.1	How can I save?.....	3
3.0	<b>Controlling your heating requirements.....</b>	<b>4</b>
1.1	Simple Measures.....	4
1.2	More Complex Measures.....	4
1.3	TRV's.....	5
1.4	Zoned Heating Controls.....	5
1.5	Smart heating Controls.....	6
4.0	<b>How to make your oil or gas go further.....</b>	<b>6</b>
1.1	Condensing Boilers.....	6
5.0	<b>Conserving your hot water.....</b>	<b>8</b>
1.1	Poor Quality HWC Insulation.....	9
1.2	Use of Standard Heating Coils.....	9
1.3	Immersion Heaters.....	9
6.0	<b>Further Grants Available.....</b>	<b>10</b>
7.0	<b>Further Information.....</b>	<b>12</b>





## 1.0 Introduction

With oil and gas constantly on the rise and a real focus on countries to reduce their carbon footprint, whilst also reducing our energy dependency. It is very important people are always watching out for ways to cut back and save on their energy dependency.

Your heating system is one of the most important things to bear in mind when looking to reduce your heating bills and in fact it is even more important in homes that are poorly insulated. This e-book aims to give you a better understanding on how your heating system works and more importantly what to do to use your heat more efficiently and in turn help to reduce your heating bills.

## 2.0 Understanding your heating system

However, in order to know how to get the most from your heating system you firstly need to know how it works.



Your heating system basically consists of a heat source which can be in the form of an oil, gas or solid fuel boiler which is connected to a circulation pump. This circulates hot water which has been heating in the boiler around your house through the radiators and the coil of the hot water cylinder in the process before returning to the boiler to be re-heated again. The radiators heat your rooms while the coil in the hot water cylinder

heats your hot water in the process. Sounds simple?

### 2.1 Oil or Gas?

Oil and gas are both highly efficient heating fuels, giving a good return on every unit of energy. This is reinforced by the fact that modern condensing boilers are becoming more and more popular through Ireland. These condensing boilers



have an **efficiency of 90%+** which compares to the existing boilers in some households that are only running at **70% efficiency**.



OR



Oil and gas prices are currently on the rise and are likely to remain high. However, gas prices are presently cheaper than oil when measure in delivered energy costs 'cent/kWh'.

## 2.2 How can I save?

When it comes to making savings on your heating system it is very straight forward. Firstly, you need to reduce the amount of heat you require without necessary reducing your comfort level in your home.

This can be done through several straight forward steps with the main one being controlling what areas of your home you heat and when you heat them.



Once you have reduced the amount of fuel you need whether its oil, gas or even solid fuel you then need to make that fuels go further. This may require some upgrading of your heating system but the good news is that you can make your fuel go up to **30%** further if you currently has a heating system that is up to 15 years old.



### 3.0 Controlling your heating requirements

When looking to reduce your heating requirement you should always target the easy least expensive measures first. When you have many of the simple measures carried out, you can then focus on the more expensive measures after.



### 3.1 Simple Measures

1. Always turn down radiators that are not been used.
2. Always ensure to turn off the heating if you are leaving the house.
3. Turn off or turn down your heating in rooms that you are not using.
4. Be sure to turn off your heating if you are popping out and set a timer to bring it back on.
5. Turn off your heating before you go to bed, you radiators will continue to heat for some time after.
6. Turn down your thermostat by **1°C**, it could save you as much as **10%** from your heating bills.
7. Always service your boiler annually to insure it is working to its maximum efficiency.
8. Make sure doors leading into colder parts of your home are kept closed.
9. During bright sunny days be sure to pull back the curtains to take advantage of the solar gain.
10. Close your curtains at night to reduce heat loss through external windows.

### 3.2 More Complex Measures

Now that you have picked the low hanging fruit it is time you reached a little further, good heating controls are essential to allow you to efficiently control your heating.



There is no point having the heating switched upstairs on all evening when everyone is downstairs or similarly there is no point heating the spare room to the same temperature as the room you are staying in each day so as you can see, controls are key.

Efficient heating controls can reduce your fuel costs and the amount of fuel that is used, while ensuring that your home is warm and comfortable to live in. By establishing an efficient heating control system, you can set the controls to fit your living patterns and to choose when to minimise heating usage. Efficient heating controls come in a variety of different types which have their own unique selling points.

### 3.3 TRV's

Thermostatic Radiator Valves (TRV's) are one of the simplest forms of temperature controls and can be fitted to radiators to give ultimate control of your home's heating system. These TRV's enable you to control the heat output from your radiators on a room by room basis.

It will close down the flow to the radiator, when the desired air temperature is reached, thereby cooling the radiator and generally regulating the room temperature. TRV's even allow you to set the room temperature that is required, you can even turn the TRV completely down, if you are not occupying the room in question, thus conserving energy and saving you money on your heating bills. TRV's are simple, effective and inexpensive but can be quite crude at times.

### 3.4 Zoned Heating Controls

 This system of controls is more complex than simply using TRV's but is more effective. Zoning of your heating system allows you to control the heating in different areas of the house by time and temperature. This means you can turn on your heating downstairs separately to your heating upstairs while also being able to switch on your hot water supply on its own as well.





There are also thermostats fitted in each heating zone and on your hot water cylinder which automatically turn off your heating when each individual zone or hot water reaches the desired temperature.

Zoned heating controls are quite more complex and expensive to install than TRV's but are certainly more efficient and will save you more in the long run.

### 3.5 Smart Heating Controls



Smart heating controls are relatively new and provide the maximum flexibility and efficiency. They enable you to control your heating via your smart phone, laptop or PC using specially designed software.

This allows you to simply switch on your heating each day at different times depending on your schedule from anywhere, a bus, a train or even your car. This ensures that you only switch on your heating when you need it and not just at a prescribed time each day in turn maximising your savings.

Smart controls can be installed in conjunction with zoned heating controls and is the most expensive way of controlling your heating but is certainly the most flexible and efficient.

## **4.0 How to make your oil or gas go further**

Now that you have made sure you have proper control of your central heating and you are using it as sparsely and efficiency as possible, it is time to make sure your boiler is doing the same.

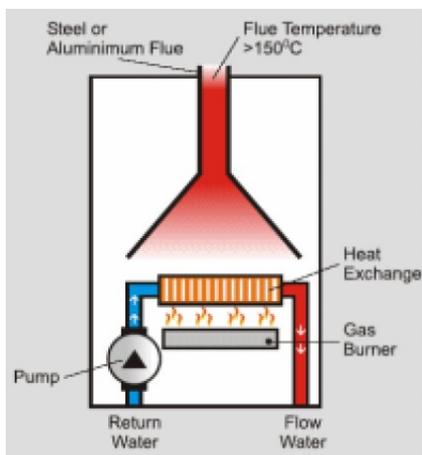
Older oil or gas boilers that are up **15 years old** may only have an **efficiency of less than 70%**. High efficiency condensing boilers **available today** have efficiencies **greater than 90%**.

This represents an improvement in efficiency of **up to 20%**. Increasing the operational efficiency of your boiler by this amount represents an actual fuel **saving of more than 25%**. In other words, by replacing an older, low efficiency boiler with a new, high efficiency boiler, you can cut your fuel bills by a quarter.

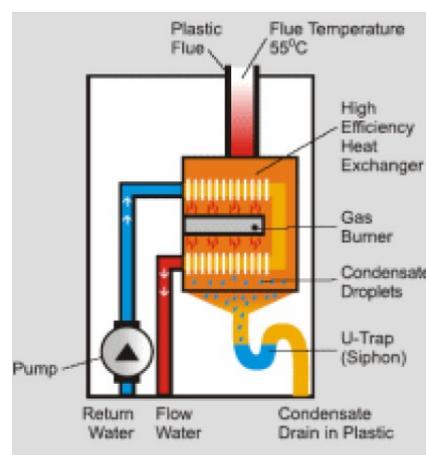


## 4.1 Condensing Boilers

While many homes have the traditional boiler within their system, condensing boilers are now largely replacing the earlier conventionally designed boilers. When gas or oil is burned carbon dioxide and water are produced. In an old fashioned boiler, these exhaust gases go up the chimney or flue at high temperature (about 150°C). At this temperature the water produced by combustion is in the form of vapour which ends up in the atmosphere and results in a lot of costly heat escaping also.



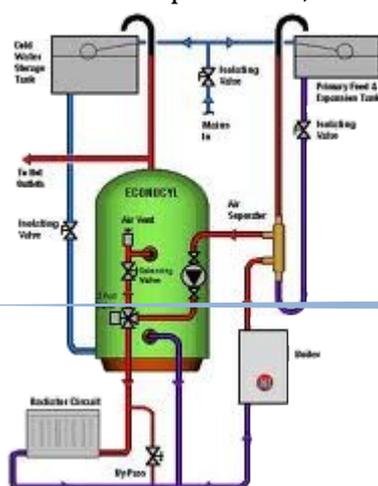
**Conventional Boiler at 80% Efficiency**



**Condensing Boiler at 87% - 93% Efficiency**

A condensing boiler has a higher efficiency heat exchanger (typically greater than 90%), achieved by using the waste heat in the flue gases to pre-heat the cold water entering the boiler. The exhaust gases are at a much lower temperature of between 40°C to 70°C.

At these temperatures, the water produced by combustion begins to condense out resulting in even more energy recovery. A condensing boiler wastes only about 1/20th of the fuel compared to 1/5th for a conventional boiler.



5.0

## Conserving your hot water



In many houses the hot water heating system is the next biggest energy waster following the central heating system. Often times the storing of the hot water can waste a tremendous amount of energy. This waste of energy can be attributed to a number of items which you should be mindful of;

- No or poor quality tank insulation
- Standard heating coils;
- Untimed temperature controlled immersions.

### 5.1 Poor Quality HWC Insulation

In the majority of households many people do not realise the necessity for the hot water to be insulated even though there is a large amount of heat being lost while the hot water flows through the tank.



In addition to that huge heat loss occurs through an un-insulated or poorly insulated hot water cylinder overnight resulting in the need for it to be re-heated once again in the morning at further cost.

It is for this reason that it is recommended that hot water cylinders should either be insulated using a good quality insulating jacket or be replaced with a factory insulated cylinder similar to the one in the picture above.

### 5.2 Use of Standard Heating Coils



Many existing hot water cylinders are fitted with a standard heating coil which has the appearance of a smooth pipe has rolled into a coil in comparison to a rapid recovery coil which has jagged surface while forming the shape of a coil as well.



The disadvantage of a standard in comparison to a rapid recovery heating coils is that it has much smaller surface area which in turn allows slower heat transfer and results in your hot water taking longer to heat and using more fuel in doing so.

However, a rapid recover coil by their name, help to achieve quicker reheating times and reduce the amount of water that needs to be used saving you money in the process.



### 5.3 Immersion Heaters

Hot water heating systems in most houses in Ireland have a manual immersion in which it is turned on when hot water is needed and turned off afterwards. If the immersion is left on unintentionally, it will constantly heat the water until eventually turned off. This results in wasted fuel and money.



By installing a temperature controlled immersion, the temperature can be regulated so that when it reaches the desired temperature, the thermostat sends a signal to a motorised valve to close the supply, the boiler will then rest if no other control is calling for heat until some hot water is used or the cylinder cools down naturally.

## **6.0 Further Grants Available**



The Irish Government, through the [Sustainable Energy Authority of Ireland \(SEAI\)](#) are making efforts to encourage homeowners, whose house was built before 2006, to upgrade the energy performance of their homes by subsidising the cost of installing a number of measures.

The SEAI have established the '*Better Energy Homes*' scheme to provide assistance to homeowners who wish to install one or more of these measures. While offering worthwhile advice on the upgrades available to your home, there is also assistance in the form of a cash grant. These grants are fixed, irrespective of home size, though where actual expenditure is lower than the grant value, only the lower amount will be paid.

To be eligible to apply to the '*Better Energy Homes*' scheme, the following criteria must be met:

- Grant approval from SEAI must be in place before any purchase of materials or commencement of measures undertaken.
- The grant offer, once accepted by the applicant, remains valid for six (6) months from the date of issue of grant offer notification.
- Applicants must use Contractors who are active on the registered Contractor List at the time of works.
- The measure being applied for must be for newly fitted materials / products and cannot have been incentivised previously in the particular home under any other grant programme.
- Qualifying expenditure includes materials and labour except where a Contractor is completing works within his own home, then only the cost of materials will be deemed qualifying expenditure.

A summary of the grant amounts and how they relate to different house types is shown overleaf.

### **Sustainable Energy Authority of Ireland (SEAI) '*Better Energy Homes*' Scheme Grants**



<b>Product</b>	<b>Grant Fee (€)</b>
<b>Insulation</b>	
Attic	€200
Cavity Wall	€250
Dry-Lining	
Apartment or Mid Terrace House	€900
Semi-detached or End Terrace House	€1,350
Detached House	€1,800
External Wall	
Apartment or Mid Terrace House	€1,800
Semi-detached or End Terrace House	€2,700
Detached House	€3,600
<b>Heating</b>	
Heating Controls and Boiler (Oil or Gas) Upgrade	€560
Heating Controls Upgrade only	€400
Solar Heating	€800
<b>Building Energy Rating (BER)</b>	<b>€50</b>



## 7.0 Further Information

I hope that you have found this information useful in outlining several easy steps to help you to save energy and reduce your heating bills.

However, if you have any queries in relation to your heating which were not answered in this eBook you can contact Churchfield Green Energy today on either **(01) 410 5854** or log on to [www.churchfieldgreenenergy.ie](http://www.churchfieldgreenenergy.ie) to arrange a consultation or free survey with one of our Surveyors

**Thank you,**

**Churchfield Green Energy Team**