WEST COUNTRY HOTEL

One MTC40 (with steel plate) was fitted to the shared 30mm steel fuel pipe serving 2 oil-fired Hoval SRPlus boilers (in the photograph one on top of the other).

Another MTC40 was fitted to the shared steel supply pipe serving 2 oil-fired Worcester boilers (not certain of model)

Swimming pool, oil-fired boiler fitted with two X8s (not pictured)

Kitchen (LPG) - hobs, ovens, hot, plates and grills were fitted with five X8s (not pictured),

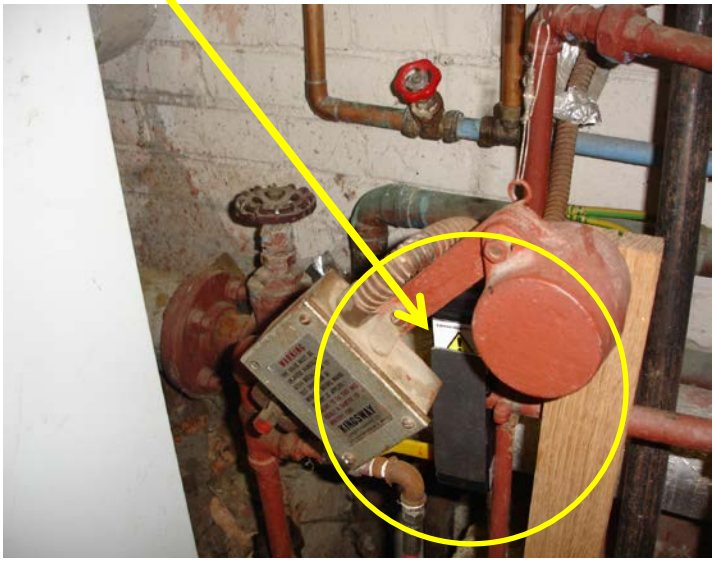
There are **three cottages** and each one has a domestic oil boiler. X8 fitted to each one (not pictured)

Two gas (LPG) driers, one X8 for each drier (not pictured).

Swimming Pool. Five X8's strapped round the hot water return (grey plastic pipe) to treat the water and reduce the amount of chlorine.

Two oil-fired Hoval SRPlus boilers, fitted with the MTC40.

Two oil-fired Worcester boilers fitted with another MTC40



Fuel Optimisers fitted 21.9.11

Date	Hotel Oil	Degree Day 20C	Pool Oil	Degree Day 32C		Date	Hotel Oil	Degree Day 20C	Pool Oil	Degree Day 32C
15.10.10						03.10.11				
02.11.10	5000	148.0	2143	364.0		28.10.11	6000	152.5	1900	452.7
22.11.10	6319	112.5	2000	351.5		18.11.11	5000	147.5	2000	399.5
09.12.10	7818	288.9	2232	462.9		12.12.11	8001	224.0	2001	512.0
20.12.10	2999	160.6	1416	292.6		28.12.11	3000	173.8	1596	365.8
06.01.11	5001	248.7	2001	452.4		18.01.11			2000	468.7
25.01.11			2001	456.9		01.02.12	4001	391.1	2000	324.6
04.02.11	7000	376.1	1501	267.2		14.02.12	6001	177.2	1820	351.0
18.02.11	5000	147.6	2001	315.6		29.02.12	6000	157.7	1901	337.7
04.03.11	3987	153.5	2001	321.5		19.03.12	4872	201.8	2000	429.8
16.03.11	4002	151.7	2001	295.7		11.04.12	2000	216.8	2000	493.1
01.04.11	3997	152.7	2000	344.7		27.04.12	3000	167.3	1700	359.3
21.04.11	2650	152.7	2000	394.0		11.05.12	4000	117.1	2000	285.8
09.05.11	3000	112.6	2000	324.9		01.06.12			1557	376.0
27.05.11	3000	119.1	1883	335.1		11.06.12	3961	177.4		
15.06.11	3001	114	2001	336.9		20.06.12	2001	48.8	2000	328.9
11.07.11	3000	119.3	2000	426.4		11.07.12	3000	99.1	2000	351.9
02.08.11	3000	75.4	1748	331.7		31.07.12	2001	70.3	2001	300.2
06.09.11	3000	130.1	1974	545.1		20.08.12	2000	46.8	1777	280.4
03.10.11	3000	99.2	1671	423.8		14.09.12	2195	88.9	2106	379.9
352 days	**74775**	**2862.7**	**36574**	**7042.9**		**347 days**	**67033**	**2658.1**	**34359**	**6797.4**

Reduction in fuel consumed

Hotel

2010/11 74775 divided by 352 = 212.42 litres per day

2011/12 67033 divided by 347 = 193.18 litres per day

Improvement 212.42 – 193.18 = 19.24, divided by 212.42 = **9.06%**

Pool

2010/11 36574 divided by 352 = 103.90 litres per day

2011/12 34359 divided by 347 = 99.01 litres per day

Improvement 103.90 – 99.01 = 4.89, divided by 103.90 = **4.70%**

REDUCTION ADJUSTED FOR DEGREE DAYS

HOTEL

First we adjusted the hotel consumption to take some account of the fuel used for hot water only, (this is little affected by seasonal temperatures). We have also assumed usage to be fairly constant throughout the year, irrespective of the external ambient temperature.

We used an estimate based on the fuel consumed in the period 11.07.10 to 02.08.10 (22 days). The fuel consumed was 3000 litres; we assumed that 2000 litres was attributable to hot water treatment, which is 90.9 litres per day.

We deducted the hot water figure (90.9 litres) from the daily average hotel fuel usage, resulting in the figure for “space heating” only.

2010/2011 212.42 – 90.9 = 121.52 litres per day
2011/2011 193.18 – 90.9 = 102.28 litres per day

We then adjusted the “space heating” figures to take account of the changes in ambient temperature in the two periods. The means of adjustment is to use “Heating Degree Days” (HDD). This is a method and formula laid down by the Carbon Trust and widely used to provide an “estimate” of the changes in consumption due to weather conditions.

In 2010/2011 the HDD was 2862.7 divided by 352 = 8.132 per day
In 2011/2012 the HDD was 2658.1 divided by 347 = 7.659 per day

In 2010/2011 121.52 litres divided by 8.132 HDD = 14.943 litres per degree day
In 2011/2012 102.28 litres divided by 7.659.HDD = 13.354 litres per degree day

The estimated reduction in fuel consumption, PER DEGREE DAY is 14.943 – 13.354 = 1.589 divided by 14.943 = 10.634%

POOL

2010/2011 103.9 litres daily consumption divided by 20.008 HDD (7042.9 divided by 352) = 5.193 litres of fuel per degree day
2011/2012 99.01litres daily consumption divided by 19.589 HDD (6797.4 divided by 347) = 5.058 litres of fuel per degree day

The estimated reduction in fuel consumption PER DEGREE DAY is 5.193 – 5.058 = 0.135 divided by 5.193 = 2.6%

NB. The pool already had an old type magnetic fuel optimiser fitted which was replaced. This explains the lower level of savings achieved, but also shows the improvement in the new optimisers

Note: Degree Day Formula
Degree Days are essentially a simplified representation of outside air-temperature data. They are widely used in the energy industry for calculations relating to the effect of outside air temperature on building energy consumption.

Heating degree days “HDD” are a measure of how much (in degrees) and for how long (in days), outside air temperature was lower than a specific “base temperature” (or “balance point”). They are used for calculations relating to the energy consumption required to heat buildings.

The base temperature for the hotel was 20C and the pool 32C.

REDUCTION IN CO_2

The **reduction** in oil consumption was approximately **10,000 litres** per annum.

The factor generally used for calculating the effect of burning oil is **2.96 kg CO_2 per litre** (this also takes account of the oil used in the refining process itself).

A saving of 10,000 litres of oil has therefore resulted in a **reduction** in **annual CO_2** production of **29,600 kg**