

### Where Energy is Consumed.

The data which follows is extracted from the government figures for individual industries combined with our analysis of the CO<sub>2</sub> cost of useful energy. They give the pattern of energy use and the consequent CO<sub>2</sub> output broken down by the industries and services where it is used. The figures do not exactly tie up with the overall CO<sub>2</sub> figures for the UK - it is after all jolly difficult to discover the energy consumption by industry, however there is an acceptably level of correlation. In some places we have made guesstimates!

#### Adjusted Carbon Dioxide outputs.

N.B. Allows for energy used for extraction and processing. But (mostly) not for delivery - except for delivery of electricity.

1 ton(o.e)	Raw CO <sub>2</sub>	Adj	
Coal	3.60 tons	3.69	(some energy used in mines)
Spec fuel	3.60 tons	3.60	(Assume by-prod of steel)
Raw Oil	2.7 tons	3.08 tons	
Nat gas	1.88 tons	1.97	(allows for energy use in energy ind)
Elect(useful)	0	5.43 tons	

Note. No CO<sub>2</sub> is produced when electricity is consumed but the average amount needed to produce electricity is big.

#### Where Useful Energy is Consumed.

	Mt oil equiv	CO <sub>2</sub>	CO <sub>2</sub> (total)
<b>Domestic Fuel heat.</b>			
Coal + spec	0.9	3.3	
Oil	3.5	10.8	94.6
Nat gas	33.2	65.4	
Off-peak elec	2.75	14.9	
Com heat	0.03	0.2	

#### Domestic Electricity.

Electricity	7.22	39.2	39.2
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N.B. Average domestic electricity consumption per household is about 10 kwh per day ignoring off-peak electricity.

Including the off-peak heating increases this average to around 13 kwh. This does not imply that the average for off-peak heating is only 3 kwh per day, since there are lots of households without off-peak heating.

<b>Travel/ Transport.</b>	55.3 (+ elec)			Total 174.6
Cars (oil)	27	83.2	83.2	
Coach (oil)	2	6.1		
Lorries (oil)	13	40.0	46.2	(inc coaches)
Planes	11.6	35.7	35.7	
Other (oil)	1.4	4.3	4.3	
Trains (oil)	0.3	0.9		
Trains (elec)	0.8	4.3	5.2	(all trains)

#### Total Energy Consumed by Industry Sectors.

##### Basic Steel Making.

Coal	1.2	4.4	
Spec fuel	2.7	9.7	
Oil	0.2	0.6	28.5
Nat gas	2.5	4.9	

Elect	0.07		0.4	
Heat (from elec)	1.3		7.1	
Heat (from coal)	0.4		1.4	
<b>Iron and Steel. Processing.</b>				
Coal	0.05		0.2	4.3 (Total for Iron and steel c. 33 (Mt. Production c. 13 Mt so (about 2½ ts CO <sub>2</sub> per ton)
Special fuel	0.4	Mt	1.4	
Elect	0.5		2.7	
<b>Non-ferrous metals.</b>				
Coal	0.05		0.2	
Special fuel	0.1		0.3	
Nat gas	0.4		0.8	4.0
Electricity	0.5		2.7	
<b>Mineral Products.</b>				
Coal	0.2		0.7	
Petrol	0.26		0.8	7.1
Nat gas	1.1		2.2	
Elect	0.62		2.7	
<b>Chemicals.</b>				
Coal	0.044		0.2	
Nat gas	3.88		7.6	
Petrol	0.33		1.2	25.3
Elect	1.87		10.2	
Heat	1.12		6.1	
Petrol as chemical	10.5		32.2	35.1
Gas as chemical	1.2		2.4	
<b>Mechanical Engineering.</b>				
Coal	0.031		0.1	
Nat gas	0.7		1.4	6.4
Petrol	0.28		0.9	
Elect	0.74		4.0	
<b>Electrical Engineering.</b>				
Nat gas	0.4		0.8	
Elect	0.50		2.7	3.8
Petrol	0.10		0.3	
<b>Vehicles.</b>				
Nat gas	1.0		2.0	
Petrol	0.20		0.60	5.3
Elect	0.50		2.7	
<b>Food etc.</b>				
Coal	0.082		0.30	
Nat gas	2.38		4.69	11.9
Petrol	0.33		1.02	
Elect	1.02		6.32	
<b>Paper.</b>				
Coal	0.024		0.09	
Nat gas	1.34		2.64	9.4
Petrol	0.12		0.37	
Elect	1.164		6.32	

<b>Construction.</b>					
	Nat Gas	0.25	0.49		
	Petrol	0.50	1.54	2.8	
	Electricity	0.14	0.76		
<b>Other Industry.</b>					
	Coal	0.235	0.87		
	Nat gas	3.40	6.70	29.3	
	Petrol	2.00	6.16		
	Electricity	2.86	15.52		
<b>Unclassified.</b>					
	Special fuel	0.124	0.45		
	Petrol	2.24	6.90	7.4	
	Renewables etc	0.226			
<b>Commerce.</b> (N.B. Shops 52% Offices 35% Hotels 13%)					
	Nat gas	3.10	6.11		
	Petrol	0.40	1.23	40.6	
	Electricity	6.13	33.29		
<b>Public Admin.</b>					
	Nat gas	3.80	7.49		
	Petrol	0.77	2.37	23.4	
	Electricity	1.8	9.77		
	Heat	0.7	3.80		
<b>Agriculture.</b>					
	Petrol	0.56	1.72		
	Nat gas	0.124	0.24	3.9	
	Elect	0.35	1.90		
<b>Totals.</b>					
	Coal		2.9Mt		
	Spec Fuel		3.6		
	Nat gas		58.8		
	Petrol		77.6	CO <sub>2</sub> Total	556 Mt (almost spot on!)
	Electricity		29.5		
	Heat		3.6		
	Total		167 Mt		

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