			Annual wastage in UK		
Component	Description	% Efficiency	Billion kWh	Million TOE	Million tonnes CO_2
A. Thermodynamic restraints	A traditional fossil fuels power station burns the fuel to boil water into steam. The steam drives turbines to turn the generator. The steam is then cooled to condense it back into water. There is no way of avoiding the need of this system to heat up the surroundings. It will always be inefficient.	38	800	68.8	408
B. Generators	In coal, oil and nuclear power stations, the generators are turned by the steam turbines. From this movement, they generate a voltage which can drive a current into the transmission system.	95	39	3.4	19.9
C. Generator transformers	Transformers are used to step the voltage up at the power station and to step it down close to the end-user. The transformers at the generator end are usually state of the art and highly efficient.	99.5	2.2	0.2	1.1
D. Distribution system	This includes the step down transformers and the cables, which carry the electric current from the power station to the end-user. All the wires have electrical resistance and therefore get hot, wasting some of the energy as low grade heat in the atmosphere.	92	35	3.0	17.9
E. End use e.g. motor	We use electricity for heating, cooking, driving things (motors) and electronic appliances. All of these have inefficiencies – usually wasting energy as low grade heat.	88	49	4.2	24.9
Total (electrical total)	The total efficiency is low. Notice that, for similar percentage losses, the actual losses get smaller later on in the system. This is because there is less energy being transmitted at the later stages.	28 (74)	930 (340)	79.9 (28.9)	474 (171)