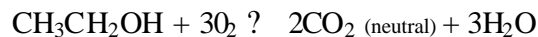


Be-tec engine summary prepared for Sir Nick Stern, November 2005

The Be-tec engine is a **cheap**, proven, compact, self-contained replacement for any application where an internal combustion petrol or diesel engine presently provides the power. It can be used below ground.

The Be-tec derives its power from full strength ethanol (E100) and does not use any fossil fuel either for starting or to provide additional power.

The ethanol contains no carcinogens; it burns in air to produce just neutral CO₂ from recently grown plants and a little water (steam). Its tail pipe exhaust contains no other gases and so can be termed as 'zero emission'.



This engine will be demonstrated in an urban commuter 'bus and an agricultural tractor. The first choice is obvious; 90,000 buses in the UK produce nine million tonnes of CO₂ per annum. This comparison can be extended to cover all transport. Demonstrated in an agricultural tractor cultivating a suitable crop the link to embedded carbon will be broken.

The engine uses long-established, proven technology combined with computer control at all stages. It is compact, lightweight, silent and self-contained. **It is cheap to build in any size and economical to operate.** It does not require the heavy, expensive transmission associated with the ICE.

Ethanol fuel is already obtainable in large quantities throughout the world and increasingly in Europe. It is now being produced to blend with fossil fuel in bio-fuelled cars. Outside the control of the oil companies, its production will **encourage agriculture everywhere** and reduce the dependence of Third World countries on expensive imports. Methanol is a poisonous fossil fuel.

Ethanol has a high-octane value and a low flashpoint. It can be stored unpressurised and dispensed through forecourt pumps in a similar manner to diesel fuel. On the other hand a single 30' x 24" high-pressure cylinder of hydrogen on the roof of a 'bus at 350 bar (5,000 pounds or 2.23 tons per sq inch, *Fiat figures*) will contain more than 60,000 tons of pressure when filled.

The oil companies have encouraged the fossil fuel hungry hydrogen 'bus and myths about ethanol. Full technical details and an animated schematic are available about any of the matters raised above although more information on the Be-tec engine will require an agreement on confidentiality.

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