BENTLEY AND CO_2

BENTLEY

Version 1.1 March 2008

INTRODUCTION

Around the world, the link between climate change and the growth in atmospheric CO_2 is dominating the environmental debate. The global automotive industry has found itself at the centre of the issue, needing to cut both CO_2 emissions and address energy scarcity.

Bentley, one of the world's leading producers of high-performance luxury cars, is addressing that challenge alongside other manufacturers across the car industry.

The company also faces the additional challenge of preserving the employment and economic benefits created by Bentley's recent business success – both in the UK and abroad – while simultaneously addressing public concerns on sustainability and the environment.

This paper sets out Bentley's stance on the environment and fuel scarcity, and provides further details on the brand's ambitious strategy to help shape tomorrow's luxury car market.

COMMITMENTS

Bentley is to reduce CO_2 emissions and significantly improve fuel economy between now and 2012. As a socially responsible manufacturer, Bentley will increase powertrain efficiency across the board, while introducing "Flex-Fuel" technology to enable every new Bentley to use renewable fuel. Bentley believes that its three-stage strategy will go a long way to address the CO_2 emission and fuel security concerns:

1. Bentley will take measures to reduce CO_2 emissions by at least 15% across our entire range by 2012. It will achieve this by applying improved technologies to current powertrains, introducing new transmission systems and drivelines, and reducing the weight of Bentley cars.
2. In a further measure, Bentley will introduce a new powertrain offering a 40% improvement in fuel economy by 2012.
3. Also by 2012, 100% of the range will be compatible with renewable fuels, delivering significant saving in CO_2 emissions.

Given customer expectations of Bentley, an important factor of the strategy is that it delivers an improved environmental output without compromising the outstanding levels of performance and luxury, for which Bentley is renowned.

KEY DRIVERS

Throughout the construction of our future business strategy, Bentley has consulted a range of sources and studies from petrochemical, regulatory and automotive research bodies, and taken into account the positions of environmental groups.

The company concluded that there are two major issues facing the automotive industry in the 21st Century, namely the security of fuel supply, and the issue of climate change.

From the outset, Bentley decided that addressing these two pressing issues must play an integral part in securing the company's relevance in the future.

SECURITY AND SCARCITY OF FUEL

In early 2008, the price of crude oil climbed above $100 per barrel amid increasing demand from developing markets, continued growth in global mobility and slowing rates of new oil discoveries.

Coupled with a turbulent economic and political climate, the issue of fuel security has become more pressing than ever.

OPEC, in its recent report on oil supply and demand, attributed recent fuel price rises to increased demand, not a shortage of supply[1]. This, the OPEC report suggests, is due to growth in emerging economies and overall transportation growth. Global energy demand has increased by 25% since 1980, with emerging economies accounting for a significant portion of this.

Multiple sources forecast that this trend will not subside in the future.

The world's population is projected to rise by 1% per annum in the next 25 years, adding an extra 1.75 billion people by 2030. This being the case, the global demand for energy could rise by the equivalent of approximately 5.2 billion tonnes of crude oil per year[2].

1. OPEC Oil Supply and Demand Outlook to 2030
2. World Bank & RWE World Energy Report 2005

Asian economies require an ever-larger slice of the world's energy supply,[3] with an ever-expanding population which is projected to reach around 4.2 billion people in 2030. As the wealth of these developing nations grows, so will the energy requirement per inhabitant. In 2004, the USA and Canada consumed the equivalent of 7.9 tonnes of crude oil per person in energy, compared with an Asian figure of around 1.3 tonnes.

Given the growing wealth and changing lifestyles in countries such as China and India, Bentley believe this figure of 1.3 tonnes per person will increase, putting significant strain on global oil supply. If the average consumption per capita were to match Europe (3.3 tonnes), China alone would require approximately 4.4 billion tonnes of oil per year to sustain its growth in 2030 – equivalent to the total oil demand for the entire OECD (North America, Europe and Pacific) in 2005.

It is also clear that mobility is becoming a fundamental component in perceptions of today's quality of life. As the standard of living rises in emerging economies, studies suggest that the mobility of the human race will also grow. Global annual passenger transport is projected to more than double from around 30 billion kilometres (19 billion miles) in 2000 to more than 75 billion kilometres (47 billion miles).

When added together, these factors cause an increase in demand of 53% in global energy demand between today and 2030, with developing countries accounting for 70% of this figure[4].

The supply of oil is also uncertain. Even when undisclosed stockpiles are taken out of the equation, it is difficult to obtain a figure of exactly how much oil remains in the world[5].

The term "peak oil" – the point at which the supply of crude oil reaches its peak – is cited by all studies concerned with the subject of oil supply. There is little agreement on the exact date of "peak oil". Hence it is difficult to draw a concrete conclusion when reviewing the studies. Research by the Uppsala Hydrocarbon Depletion Group[6], in Sweden, suggests that oil production may have already reached its peak in 2007. But studies by Shell, the oil "major", argue the date could be as far out as the 2050 mark[7]. The discrepancies in these figures are largely due to the complexity involved in predicting sizes of undiscovered oil deposits, estimating how many of these deposits actually exist and if it is economically viable to exploit them.

The underlying fact remains that future global demand for energy, be it fossil fuel based or otherwise, far outstrips the current level of supply.

3. ibid
4. World Energy Outlook: Fact Sheet – Global Energy Trends
5. Greenpeace An Energy [R]evolution: A Sustainable World Energy Outlook
6. Uppsala Hydrocarbon Depletion Study Group, Scenario Update by Campbell, May 2004 www.peakoil.net
7. Shell Oil Energy Needs, Choices and Possibilities: Scenarios to 2050

CARBON DIOXIDE EMISSIONS

Carbon Dioxide (CO_2), regarded as a greenhouse gas, contributes to the natural warming of the Earth's atmosphere. Due to overlaps in the wavelength of infrared light absorbed by various gases[8], it is estimated that CO_2 contributes between 9% and 26% of the greenhouse effect, second only to water, which is estimated to cause between 30% and 68% of the overall warming effect[9]. Studies suggest that if concentrations of CO_2 continue to rise in the coming decades, an increased percentage of infrared radiation will be retained in the Earth's atmosphere, causing a steady rise in global temperatures[10].

By measuring CO_2 deposits in Arctic ice samples, scientists can accurately measure the historic profile of atmospheric CO_2 levels. Samples from the Vostock ice core suggest that over the last 400,000 years CO_2 levels have cyclically fluctuated between 175 and 280 parts per million[11]. Samples in 2005, however, measured 375 parts of CO_2 per million. Scientists argued the rise may have been triggered by the 600% rise in global fossil fuel emissions between 1950 and 2000[12]. The fear is that global temperatures will also begin to reflect the rise in CO_2 levels.

There is continued debate as to whether CO_2 causes temperature change or vice versa[13]. But academics generally believe a link exists between the two. Even if the theory that CO_2 levels dictate temperature change is proved wrong, Bentley believes that the potential consequences of global climate change are too great to avoid action.

In May 2007, a Japanese Government report on climate security expressed concern about fluctuations in global climate, stating that if unchecked, climate change "could threaten humanity and the ecosystems that support our very existence"[14].

Experts, moreover, widely believe that that frequency of extreme weather patterns would increase if CO_2 emission rates continued to rise at current rates. In addition, climate change would have an irreversible impact on ecosystems, triggering large-scale economic and ecological repercussions[15].

A number of industries changed their manufacturing processes and product characteristics as the evidence mounted of climate change, including the auto industry. During the late 1980s and into the 1990s, almost every car manufacturer acted to reduce harmful exhaust emissions. The introduction of technologies and components such as catalytic converters significantly reduced levels of damaging gases such as Nitrogen Oxides, Particulate Matter, Carbon Monoxide and Hydrocarbons (Fig. 1 overleaf).

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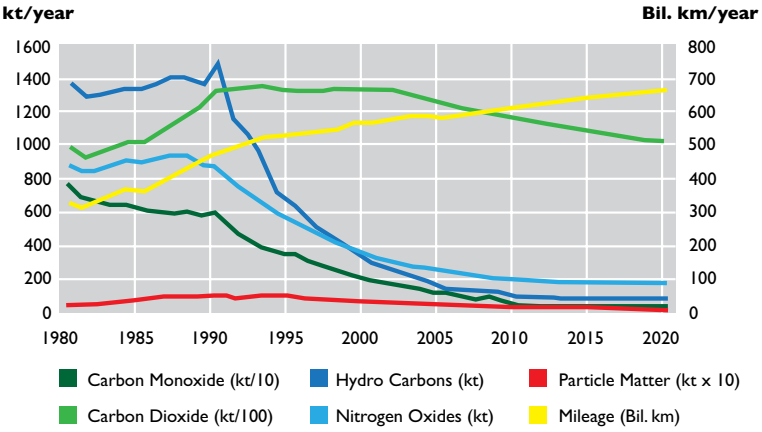
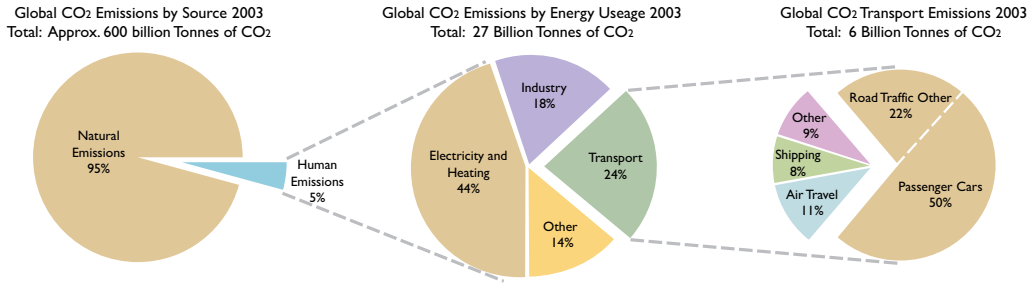
8. *Ramanathan, V., and Coakley, J.A., Jr. (1978) Climate modelling through radiativeconvective models*
9. *www.realclimate.org*
10. *Al Gore An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It 2006*
11. *www.metoffice.gov.uk*
12. *National Alternative Fuels Training Consortium at West Virginia University*
13. *Evidence from Vostock ice core samples show that increases in CO_2 levels sometimes occur after the increase in temperature has taken place: Indermühle, Monnin, Stauffer, Stocker, Wahlen Atmospheric CO_2 concentration from 60 to 20 kyr BP from the Taylor Dome ice core 2000*
14. *Ministry of Environment for Japan Report on Climate Security May 2007*
15. *Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report 2001*

FIG. 1



In the 21st Century, vehicle manufacturers, their suppliers and the fuel industry now face an even greater challenge of reducing Carbon Dioxide emissions.

FIG. 2



Passenger cars currently contribute 12% of total man-made CO_2 emissions, approximately 3 billion tonnes per year[16] (Fig. 2). Whilst Bentley contributes a numerically small portion of these global automotive emissions[17], the company will take a leading role in the luxury car market by proactively taking steps to reduce the impact of our cars on the environment.

A combination of both global warming and fuel scarcity has driven the strategy outlined by Bentley at the Geneva Auto Salon. These issues have come increasingly to the forefront of political, social and consumer debate. Having consulted a range of information and considered the evidence, Bentley believes it is now time to outline our commitments on CO_2. By doing so, Bentley will provide a market-leading, credible solution to the debate.

16. International Energy Agency

17. Bentley 10 year car parc in 2007 contributed 0.000025% of man-made CO_2 emissions, equivalent to two cans of Cola in an Olympic sized swimming pool.

KEY STRATEGIC CRITERIA

As a luxury performance brand, the reasons for purchasing a Bentley are based on a more emotional than rational need for transportation. Bentley customers buy into the brand heritage and the unrivalled, understated style and quality of the cars: this viewpoint supports the usage patterns for our automobiles.

Our research demonstrates that an average Bentley travels approximately 11,000 km (7,000 miles) per year. In this period it would emit less than 4.4 tonnes of CO_2 – the equivalent of travelling 23,000 km (14,500 miles) in a medium size family saloon.

This low average mileage is a reflection of our customers' usage patterns. Our customer research has revealed that Bentleys are used as a traditional "Grand Tourer", requiring a reserve of power where needed, for example during Motorway / Highway driving.

That said, our customers expect the Bentley brand to offer products that are environmentally sound investments. Many of our customers are influential opinion leaders and like to be seen making socially responsible choices in their modes of consumption. Bentley could meet that demand by offering a lower performance derivative. But this would not be consistent with customer expectations. The likely modest sales volume would risk making our actions appear as a cosmetic gesture, and of little practical consequence.

Bentley believes the socially responsible approach is to maximise the reduction in the average CO_2 emissions of our cars whilst maintaining the product "DNA" in terms of luxury and performance.

At Bentley, moreover, we must balance our responsibility to mankind and the planet with our responsibility to employment and economic needs. Bentley has a duty to support the workforce at Crewe, home to its manufacturing base in north-west England, and in the local economy. On a wider scale, Bentley has a positive effect on the UK and EU economy as an exporter. So any loss in sales volume would have far-reaching consequences.

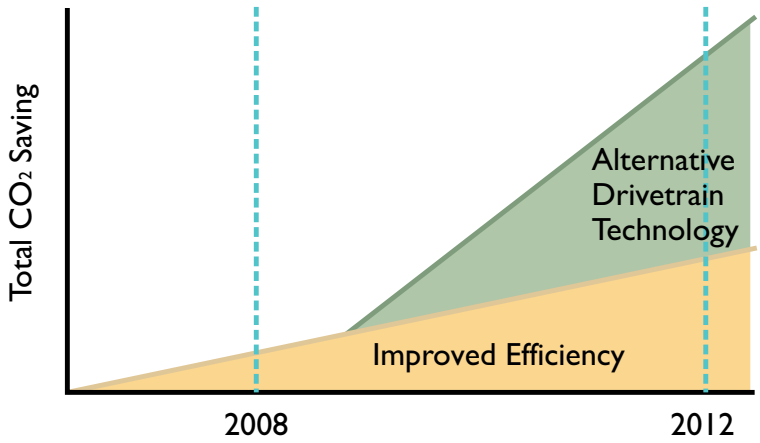
That meant that Bentley's environmental strategy had to meet the following criteria: combining high performance with a recognisable, brand-credible and socially responsible solution that addresses the issues of fuel security and global warming.

EVALUATION OF TECHNOLOGY OPTIONS

In deciding on a suitable course of action, Bentley evaluated several advanced technology options. Bentley has decided to focus on improved efficiency and the use of alternative powertrain technology, with the ultimate goal of significantly reducing CO_2 emissions and improving fuel economy.

The two improvements will run simultaneously with the deployment of new technologies complementing each other to provide significant reduction in Bentley product offering CO_2 emissions by 2012 (Fig. 3).

FIG. 3



IMPROVED EFFICIENCY

Bentley has delivered and will continue to deliver improved efficiency year-on-year, in line with the target rate of 3.2% per year proposed by EU regulations[18].

Since 2005 Bentley has made a marked reduction in CO_2 emissions in both model lines. The CO_2 output from the V8 engine that powers the Arnage, Azure and Brooklands models has declined by 6% between 2006 and 2007. This saving was attributable to the introduction of a new 6-speed transmission system, revisions to the engine calibration and a redesigned camshaft.

18. 2006 EU fleet average was 162g/km, 2012 regulation proposal is 130g/km resulting in a 19% reduction. This equates to a decrease of 3.2% per year.

The W12 engine employed in the Continental range has made a steady improvement in that time period. Recent improvements come as a result of a reduction in pumping losses coupled with a new engine controller, which has enabled Bentley to achieve a 4% reduction in CO_2 per km between 2007 and 2008.

Bentley also believes that substantial investment in our drive trains and vehicle characteristics is required. To improve efficiency between now and 2012, Bentley therefore intends to utilise a range of technologies: engine revisions, improved transmission systems, drive train alterations and enhanced vehicle characteristics will all be exploited to deliver a significant improvement in vehicle efficiency across our range. Implementation of these improvements will result in an improved efficiency of at least 15% by 2012 and continuous improvement thereafter.

ALTERNATIVE PROPULSION SYSTEMS

To further reduce our CO_2 impact and address fuel scarcity, Bentley decided to consider alternative propulsion systems to traditional gasoline. Bentley believes that in order get a true picture when evaluating alternatives, the entire energy production process ("Well-to-Wheel" value) needs to be considered. "Well-to-Wheel" (WTW) is the measurement of the net CO_2 release of the fuel from production (Well), to its combustion or deployment (Wheel). The company feels this method provides the most appropriate way to determine a company's net environmental effect.

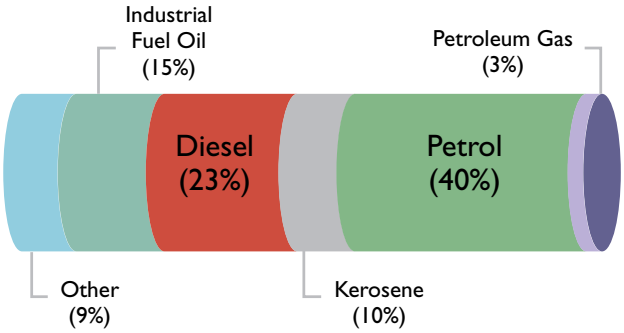
There has been significant investment in advanced technology options in the past 5 years. Our engineers have pursued several alternatives before the company decided on a technology and a fuel that best fits the requirements of our business and the preferences of our customers.

DIESEL

Bentley reviewed diesel as a possible fuel choice. Sales figures in Europe paint a positive picture for adopting diesel. About 50% of new car sales in the EU are diesel powered cars, with their owners benefiting from a higher fuel economy and approximate 20% reduction in WTW CO_2 emissions. Bentley has respect for the advances made in diesel technology in recent years. It also recognises that the fact diesel offers high torque low in the "rev" range fits with Bentley heritage.

It is important to note that the production of diesel is not independent of gasoline. Every barrel of crude oil is refined into a range of hydrocarbons. Dependent on the source, between 20% and 40% of those hydrocarbons are gasoline, and approximately one quarter to one third is diesel[19]. Whilst it is possible to alter the yields of various fuels from crude oil, it requires a significant amount of energy to "crack" the heavier hydrocarbons to yield a greater proportion of diesel (Fig. 4).

FIG 4. PRODUCTS MADE OF CRUDE OIL



From a business perspective, diesel does present some challenges for Bentley: diesel has a low market penetration in the North American markets (our number one sales market) and, given the low volume of manufacture at Bentley, the business viability of operating two vastly different powertrains in each Bentley product would be difficult to justify at present. But we will continue to monitor the situation.

19. Exxon Mobil Corporation

HYBRID

In recent years there have been significant advances in hybrid technology, and this has been reflected in sales of hybrid cars. The energy and CO_2 savings made when driving hybrid cars in an urban environment are substantial. In addition, start-stop technologies have become so advanced that it is now difficult to identify the transition from electric to petrol propulsion in hybrid cars.

Despite the benefit of zero tailpipe emissions when running on battery power, Bentley believe that currently the battery technology does not meet the driving demands of our customers. With hybrids, the CO_2 and fuel efficiency gains are made predominantly in the stop-start traffic conditions of urban driving. But it is less effective when travelling at a constant speed. Bentley believes this does not match the driving styles and car usage patterns of most of our customers.

Hybrids also currently rely on fossil fuels. These fuels are still required to power a hybrid car once it accelerates above the combined potential of the battery and the electric motor. This does not alleviate the problem of reliance on gasoline or diesel. Bentley has not ruled out the possible integration of a hybrid technology in future vehicles, potentially in combination with a renewable fuel.

HYDROGEN AND ELECTRIC VEHICLES

The general public has become increasingly aware of the concept of using hydrogen and electricity as an automotive propulsion system. These are considered as having zero tailpipe CO_2 emissions given that hydrogen is a clean burning fuel – free of carbon-based by-products – and combustion is not required in fuel cell or electric-powered cars.

But vast amounts of energy are required in the electricity and hydrogen production processes. The cleanliness of these fuels is therefore dependent on the amount of fossil fuels used in their production. Currently around 66% of the global primary electricity supply is derived from power stations using fossil fuels[20]. This means that the WTW CO_2 emissions of hydrogen and electricity technologies are more comparable to the levels of gasoline rather than being "zero".

The technology could, nevertheless, provide a significant CO_2 saving if the electricity is from an ecologically sustainable source, for example nuclear, wind, solar or bio-fuels. Bentley believes that recent focus on hydrogen-powered cars has to some extent misrepresented the facts: until the wider energy industry dramatically increases its usage of green technologies in electricity production, hydrogen remains dependent on fossil fuels.

20. Greenpeace An Energy [R]evolution: A Sustainable World Energy Outlook

BIO-FUELS

Bio-fuel technology remains a compelling alternative. The concept behind bio-fuels relies on the CO_2 consumed during the growth of a bio-fuel crop, which is later released at the point of combustion (Fig. 5). There is controversy about the CO_2 emissions resulting from the production and transportation of such bio-fuel. Further investment is required to address that issue. Yet bio-fuels could be CO_2 neutral, if production and refining is executed correctly.

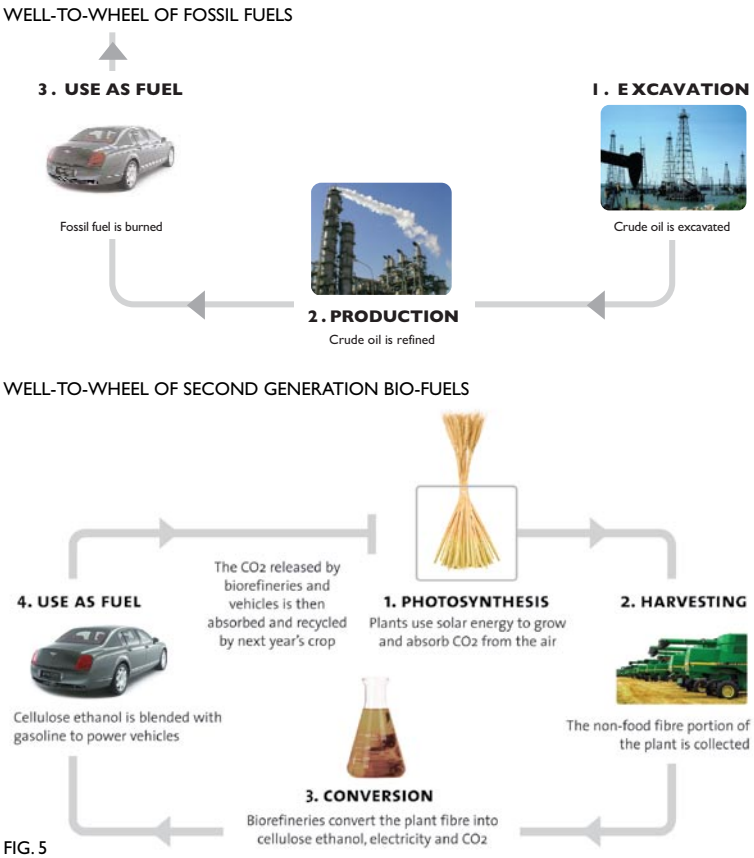


FIG. 5

Bio-fuels are defined as hydrocarbon based fuels that are derived from biomass. Biomass is derived from crops such as corn, wheat and grass, biodegradable by-products of industry (such as food waste or timber), and sewage. Bio-fuels are not derived from fossil fuels which makes them a renewable resource – addressing CO_2 issues. They are also sustainable, ensuring a secure supply into the future.

There are three categories of bio-fuels:

- The alcohols, including bio-methanol, bio-ethanol, bio-propanol and bio-butanol, are potential replacements for petrol
- Fatty-acid methyl esters (FAMEs), replacement or supplement for diesel
- Synthetic hydrocarbons which are replacements or supplements for traditional diesel or gasoline

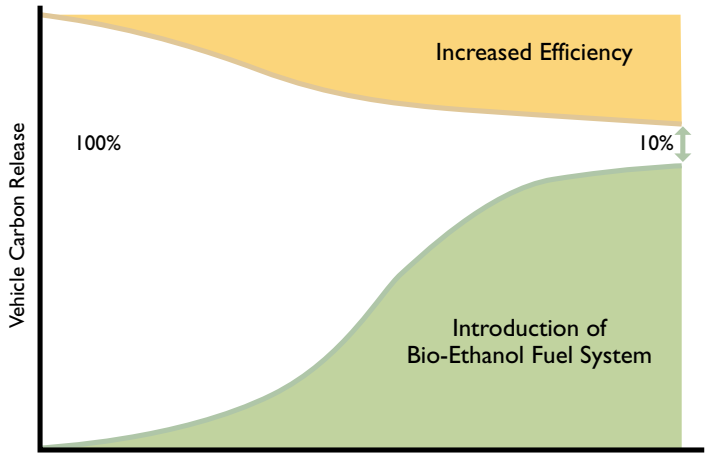
It is possible to operate an automotive engine on both the fossil fuel and its relevant replacement bio-fuel at the same time (for example petrol and ethanol). This is known as a "Flex-Fuel" system. With some changes to the fuel system, conventional petrol engines can be adapted to run on ethanol as well. Alterations are required to address the more aggressively corrosive properties of bio-ethanol which damage current specification fuel systems and engine. This makes introducing a bio-ethanol fuelled Flex-Fuel car a suitable technology for Bentley, as only one engine needs be offered in each model.

One of the drawbacks of bio-ethanol is that it has lower energy content than gasoline. This means a greater volume of fuel is required to cover a set distance, compared to its fossil fuel alternative. However it does have a higher octane rating, facilitating high performance whilst being environmentally sound. Bentley believes the issue of greater fuel volume is not significant, as repackaging and improved efficiency can offset this.

Although the global availability of bio-ethanol is currently sparse, Bentley believes that a Flex-Fuel system will smooth the transition between fossil fuels and renewable fuels, particularly as bio-fuel filling stations become more commonplace. By integrating bio-ethanol compatible powertrains into our product plan over the next four years, Bentley will deliver greater net CO_2 savings in the future as the availability of the fuel becomes more widespread.

Bentley believes that introducing a bio-ethanol powered drivetrain by using Flex-Fuel technology is the most efficient and effective way to combine the benefits of reducing CO_2 emissions and meeting the needs of our customers. By delivering renewable fuel compatible cars before 2012, Bentley are enabling our future car parc to make greater CO_2 savings once a more comprehensive infrastructure is in place and bio-ethanol becomes more widely available (Fig. 6).

FIG. 6

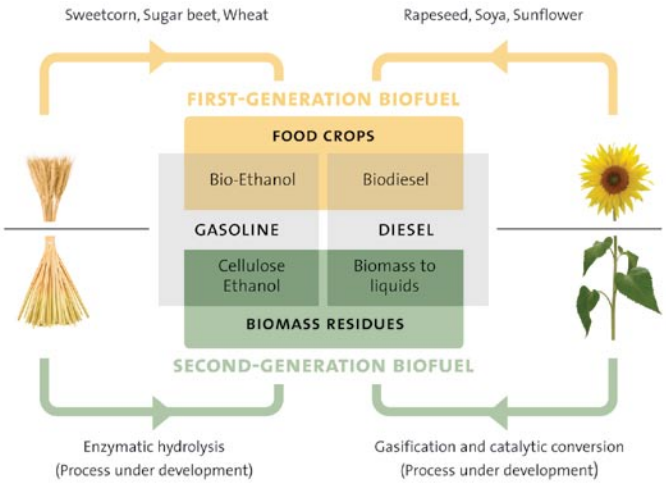


FACTS ABOUT BIO-ETHANOL

Evidence from several studies shows that the net WTW CO_2 reduction achieved by bio-ethanol is between 50% and 90%[21].

As with all bio-fuels, bio-ethanol can be categorised as either a First Generation or a Second Generation fuel, dependent on the source of the biomass. First Generation bio-ethanol is derived from starch in feedstock crops such as maize, wheat, sugar cane or barley. By comparison, Second Generation bio-ethanol is produced using the lignocellulose in the stalks of the crop (Fig. 7).

FIG. 7 FIRST AND SECOND GENERATION BIOFUELS



Despite the positive impact of impressive savings in net WTW CO_2 emissions, First Generation bio-ethanol is not always ecologically and socially sound. There are concerns that rising demand for crops as a source of fuel will drive up the price of basic foodstuffs.

Mexico has already seen civil unrest over food prices in the recent "tortilla riots". Separately, the UK government has expressed its concern over future food security in light of the expected rise in bio-fuel production. Further ethical issues have been raised in equatorial developing areas such as Africa and Borneo where bio-fuel crop growth rates – and net CO_2 savings – are the highest, as food crops are traded off against lucrative fuel feedstocks.

Most of these issues do not arise with Second Generation fuels. The advanced bio-ethanol can take advantage of the inedible part of the crop, the land usage trade-offs almost disappear. The same hectare of land can provide nearly 60% more Second Generation bio-ethanol than First Generation fuels. Indeed, crops can be used for both food and fuel. Unfortunately, due to the technology being in its infancy, the production of Second Generation fuel is currently low. But the rate of progress suggests that this will not be the case in 2012.

21. When compared to petrol – EUCAR, CONCAWE, JRC Well-to-Wheel Study 2006

Research is also underway into so-called "Third Generation" bio-ethanol which can be produced using intensively farmed algae. Currently, production methods are in their infancy. Yet the rate of growth and development in the bio-fuel industry highlights the widespread confidence in the technology and bio-fuel's importance as a long-term global fuel supply.

Bentley believes a tug-of-war over land for food and fuel should not be allowed to surface or overshadow the energy benefits of this resource. Significant investment in Second Generation bioethanol technology and farming techniques will enable humans to produce ethically sound renewable fuel Bentley believes governments and industry should take measures to encourage this.

There is currently a debate over the impact of bio-fuel on the Earth's natural habitats. Selected areas of South Asian rainforest have been destroyed to make way for palm oil to supply global demand for bio-fuels. Governmental bodies across the planet have begun to implement restrictions on this young and unregulated industry in an attempt to stop unethical habitat destruction. The Brazilian parliament has introduced an ethical certification scheme for bio-fuels, whilst the EU is expected to follow suit with bio-fuel standards.

As Second Generation bio-ethanol is produced using lignocellulose material found in crop waste, existing farmland can be utilised to provide the biomass required for bio-ethanol production. Therefore, the destruction of natural habitats such as rainforest and wetlands is negated as no additional farmland is required to meet increased demand for crop production.

Bentley believes further regulation is needed to control this rapidly growing industry to ensure that consumers can trust that their CO_2 savings are not having a detrimental impact elsewhere on the planet. Bentley would welcome the expansion of schemes, such as those in Brazil, to standardise bioethanol production and also believe governments should offer incentives to companies investing in Second Generation bio-fuel research and production.

The debates around land usage and the ethical production of bio-fuel do not give the automotive industry an excuse not to act. By introducing bio-ethanol fuelled vehicles, Bentley is increasing the capability within our market segment of using renewable fuels in the longer term, once the wider ethical and environmental issues have been addressed.

Bentley believes that taxation of fuel should be based on a well-to-wheel measurement of CO_2, not on tailpipe emissions alone. This would increase consumer demand for clean, renewable fuel sources, and reduce reliance on fossil fuels. Of course, this would require a restructuring of regulations. Bentley believes that the potential consequences of climate change are great enough to more than compensate for this.

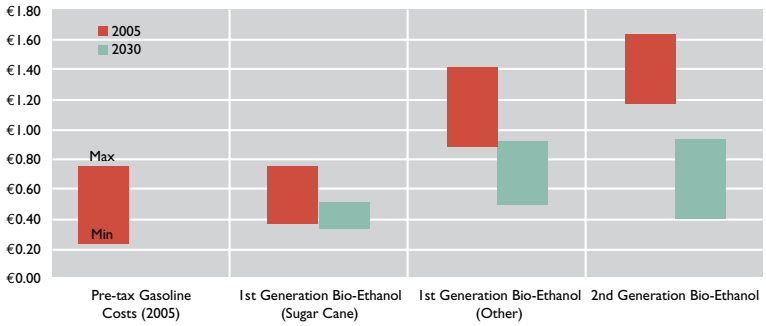
There are strong and compelling examples of the success of bio-ethanol projects today. In Sweden, 25% of new car sales are now Flex-Fuel vehicles[22] following the Swedish government's 2001 commitment to become independent from fossil fuels before 2030.

The Bio-Alcohol Fuel Foundation projects the figure to rise to 35% in Sweden in 2009 as the availability increases of bio-ethanol and range of Flex-Fuel compatible products. This growth reflects a non-linear expansion in infrastructure. It took 10 years to open the first 100 E85 (a mix of 85% ethanol and 15% petrol) filling stations, the last 100 stations opened in three months. Brazil has seen a similar trend. Large-scale production of sugar cane allows the South American nation to run 4 million cars on ethanol. Indeed, from a global perspective, it is forecast that bio-fuels have the capacity to provide energy for 60% of road transport in 2030[23].

The success of both examples can be attributed to co-operation between automotive manufacturers, government and the fuel industry in pursuing the goal of reducing CO_2 emissions and dependence on fossil fuels. The rate of adoption of bio-ethanol fuelled vehicles increases exponentially, once these parties are aligned.

Inevitably, the cost of producing bio-ethanol will fall amid increased demand and advances in technology. That will make it not just an environmentally but also economically viable alternative to fossil fuels[24] (Fig. 8).

FIG. 8 FORECAST PRODUCTION COST RANGES OF FUEL BETWEEN 2005 AND 2030



Bentley's support for bio-ethanol is rooted in the fact that it provides a "CO_2 neutral" solution to the issue of energy security, which is sustainable and has properties that best suit our customers' requirements.

As a company, Bentley fully supports the usage and would strongly recommend investment in its research and infrastructure to aid its expansion in its global coverage, providing that such fuel is produced using environmentally-friendly and ethically-sound practices.

22. BioAlcohol Fuel Foundation Biofuels and Sustainable Transport 2007
23. Novozyme Enzyme Research, based on data from the European Environment Agency
24. World Business Council for Sustainable Development Mobility 2030: Meeting the Challenges to Sustainability 2004

BENTLEY PREPARES FOR THE FUTURE

As this document has made clear, the world is facing a potential crisis over climate change and access to energy.

Inaction is not an alternative. It is the responsibility of governments and industry to act with conviction when investing in and adopting technologies that relieve or even eliminate these pressures. An economically viable, ethically and environmentally sound solution requires a clear vision and the co-operation of governments, the automotive manufacturers and their suppliers, the petrochemical industry and environmental groups. That solution must meet customers' demands and address global concerns. Examples of successful schemes already exist in Brazil and Sweden, proving that a practical solution is available. The success of bio-fuels is set to grow as technology advances.

Bentley is taking action and making a contribution to the change required from industry, even though its car parc accounts for a very small amount of global CO_2 emissions.

The company's three stage strategy – a minimum 15% reduction in CO_2 emissions across our product range, the introduction of a powertrain which produces 40% less Carbon Dioxide, and offering bio-fuel compatible powertrains across our 100% product range by 2012 – will underpin Bentley's commitment to introducing motor cars powered by renewable and sustainable fuel sources.

Bentley will act to reduce the environmental impact of its vehicles. That effort starts today with improvements in efficiency. The integration of a bio-ethanol powered Flex-Fuel system will ensure it continues tomorrow.

Follow the development of Bentley's environmental strategy at www.bentleymotors.com/bentleyandco2

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