

From the Desk of...

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Hot, Thirsty and Crowded: Are New Vehicle Technologies the Answer?

The automotive industry has been a runaway success. Everyone wants a car, especially in the emerging markets. The expectation is that today's world parc of road vehicles of 800 million will grow to 2 billion by 2050. But is this sustainable? Can the automotive industry bank on this growth with the kinds of transport systems and vehicles we have today? We think not.

The planet is getting hotter because of man-made greenhouse gases, notably carbon dioxide. The growing vehicle parc is the largest consumer of crude oil, which is beginning to run out. The highway infrastructure is increasingly saturated.

The target for reductions in carbon dioxide emissions set by many governments is 80%. This is a staggering reduction. Road vehicles are not the largest source of greenhouse gas emissions but they make a substantial and growing contribution. They will not get a special dispensation. The peak oil theory has steadily gained support. But this is only part of the problem. Coal, the fossil fuel we use most of, is also a finite resource and production is likely to peak sometime this century. China has only 40 years' worth of domestically-produced coal, at its current rate of extraction. The fossil fuel era, which has underpinned global economic growth and social progress since the start of the Industrial Revolution 250 years ago, will end. Life in 250 years' time will be as different from that today as life today is from that before the Industrial Revolution.

The combination of the internal combustion engine, petroleum-derived liquid fuels and the steel body shell has been a remarkably

successful one. Road vehicles are built largely from abundant and cheap raw materials. Liquid fuels are cheaply made from petroleum, with very low energy consumption and carbon dioxide emissions in the process. Unfortunately, petroleum supplies are getting scarcer. We have a non-transparent and inelastic supply of petroleum, leading to wild fluctuations in its market price. A large proportion of reserves sit in politically-delicate regions. Yet there is no simple alternative.

Electrifying the current vehicles produces very little gain in energy consumption or in carbon dioxide emissions, at the electricity generating mix of most countries. The cost, weight and limited capacity of current batteries make primarily electric vehicles

(including plug-in hybrids) unsaleable, without huge government subsidies. There is no real market for them today. There may be in the future, once electricity generation is greened on a wide scale. But renewable electricity is very expensive and nuclear is now once again under a cloud. We must face up to a future in which energy will be consumed in much smaller quantities, at much higher prices.

The first step towards a solution is to get people to drive smaller cars less far and less fast, which carries no technology risk. This means acceptance of specialised small urban

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vehicles, rather than buying the largest multi-purpose size one we can afford. As the restraints become accepted and electricity is greened, then we can electrify, in a second step, perhaps 20 years from now. In the end, however, we must reduce the demand for transport itself, through radical changes in how we live, work and play. This will involve completely new transportation systems and a new mobility industry. Its structures and leaders will be very different from those of today's automotive industry.

About John Wormald and The Insight Bureau

Dr John Wormald is a founding partner of *autoPOLIS*, providing strategic analysis and advice to companies in the world's automotive industry. His extensive work ranges widely from the introduction of fuel-cell-powered vehicles to the aftermarket. His intimate knowledge of the major issues facing the industry means that he is highly sought-after for his views on the future of the auto industry, as an advisor and as a speaker. Today he is leading the debate of the future of sustainable mobility.

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The Insight Bureau represents a resource network of individuals, including John Wormald, for speaking engagements and client events, as well as providing confidential, in-house briefings. The Insight Bureau provides speaker placements and briefings as a service that helps achieve a better understanding of the world in which we do business and ultimately enables companies to make better business decisions.

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