

**Jeremy Rifkin** The rise of hydrogen power makes energy regime change inevitable

## The US must follow Europe's lead and turn its back on oil

**T**his week, the world got a glimpse into the future when General Motors unveiled its revolutionary new Hy-wire car at the Paris motor show. GM's automobile is run on hydrogen, the most basic and lightest element in the universe. When burned, it only emits pure water and heat.

The automobile itself is built on a fuel-cell chassis that lasts for 20 years. Customers can snap on any model they want. There is no conventional steering wheel, no pedals, brakes or engine — the car is steered with a joystick. It is a car for the dotcom generation. While GM financed the car, what is particularly interesting is that much of the engineering, design and software were developed in Europe. The GM car marks the beginning of the end of the internal combustion engine and the shift from an oil-based civilisation to a hydrogen age. Its debut in Europe also speaks to a great change taking place in the way Europe and America view the future.

The EU and the US are beginning to diverge in the most basic aspect of how a society is organised: its energy regime. Nowhere was this emerging reality more apparent than in Johannesburg, at the world summit, when the EU pushed for a target of 15% renewable energy by the year 2010 for the whole world while the US fought the initiative. The EU has already set its own internal target of 22% renewable energy for the generation of

electricity and 12% of all energy coming from renewable sources by 2010.

The difference in approach to the future of energy couldn't be more stark. While the EU is beginning to mobilise its industrial sector, research institutes and the public to the task of making an historic transition out of carbon-based fossil fuels and into renewable resources and a hydrogen future, the US is pursuing an increasingly desperate search to secure access to oil. President Bush's almost fanatical obsession with opening up the pristine wildlife refuge in Alaska for oil drilling, despite the fact that even the most optimistic estimates conclude that the oil there will only provide a mere 1% to total global production, is a case in point. Now the president seems determined to invade Iraq. The ostensible reason is that Saddam Hussein may be harbouring weapons of mass destruction, posing a serious security threat to its neighbours and the rest of the world. He may well be right. Still, there is a powerful sub-theme making its way in political circles that the White House is certainly mindful of. That is, Iraq contains the second largest oil reserves in the world, after Saudi Arabia. If a US invasion were to "liberate the oil fields", the US would enjoy a new strategic position of influence in the oil-rich Persian gulf and provide a counterpoise to Saudi influence in the region.

Meanwhile, just in case the White House's Middle East strategy backfires, President Bush convened a

high-level meeting in Houston last week to work out the details of an earlier May agreement with President Putin of Russia to secure oil from Siberia. Of course, what is left unsaid in the euphoria around finding a possible substitute for Persian gulf oil is that Russia's remaining oil reserves are less than half that of Saudi Arabia, and the Russian reserves are depleting quickly as its oil companies flood the world market.

**W**hat is becoming clear is that while the EU is looking to the future, the US is desperately holding on to the past. The world is moving into the sunset era of the great fossil-fuel culture that began with the harnessing of coal and steam power more than 200 years ago. Granted, the world's leading petro-geologists disagree about exactly when global production of oil will peak. That is the point where half the known oil reserves and projected oil yet to be discovered are used up. After that point, the price of oil on world markets steadily rises as oil production moves down the classic bell-shaped curve. The Cassandras say that peak production is likely

The new car has no engine, but it marks the shift from an oil-based civilisation

to occur as early as the end of this decade, but probably no later than 2020, while the optimists say that global peak production won't occur until around 2040. What is most striking, however, is how little time difference separates the two camps — only 20 to 30 years. What they both agree on is that once global oil production does peak, two-thirds of the remaining oil reserves will be in the Middle East, the most politically unstable and volatile region of the world. What this means is that countries still dependent on oil will be locked into a fierce geopolitical struggle to maintain access to the remaining oil fields of the Middle East, with all of the grave risks and consequences that accompany that sober reality.

The difference in perspective between Europe and America on this score is reflected in the attitudes of the world's giant energy companies. The European-based energy giants, British Petroleum and Royal Dutch Shell, have made a long-term commitment to making the transition out of fossil fuels and are spending large amounts of money on renewable technologies and hydrogen research and development. BP's new slogan is "Beyond Petroleum" and Philip Watts, chairman of the committee of managing directors of the Royal Dutch/Shell Group, has stated publicly that his company is preparing for the end of the hydrocarbon age and is actively exploring the promise of the hydrogen economy. By contrast, the American energy company,

Exxon Mobil, has remained steadfast in its long-term commitment to fossil fuels with little effort being expended on renewables and the exploration of hydrogen-based research development.

The EU is now in a unique position to lay claim to the future by becoming the first superpower to make the long-term shift out of carbon-based fuels and into a hydrogen era. A change in energy regimes of this magnitude over the course of the next half century is likely to have as profound an impact on human society as the harnessing of coal and steam power more than three centuries ago. The fossil-fuel era forever changed our living patterns, our notion of commerce and governance, and the values we live by. So too will the coming hydrogen economy.

At some point, the reality is going to set in that Europe is heading into a new energy future. When that happens, the ripple effect could cross the pond like a great tsunami — forcing the US to rethink its own energy future. The last time the US was awakened from its somnambulism was 1957 when the Russians sent their first satellite into outer space. Caught by surprise, it mobilised every corner of American society to the task of catching up and surpassing the Russians. Maybe it's time for another jolt.

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