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Yeo: Conservative Action for a Greener Britain



Speech to the Centre for Policy Studies

"During the past two years, my portfolio has covered Trade and Industry; Energy, Science and Technology; Health and Education; the Environment and, finally, Transport. I suppose I could claim this makes me the most versatile, if not the most expert member of the Shadow Cabinet.

In each area, I have been involved in reshaping our Conservative policies, trying to learn lessons from the 20th century, and starting to set out strategies for the 21st and apply our beliefs, ideals and philosophy to a world of new pressures and changing goals.

The duties of government

Fundamentally, government has only a limited range of duties.

Defending the borders, policing the streets, providing a framework for education and promoting public health are prominent among them.

Maintaining a high quality environment and overseeing the provision of a modern transport system are two more.

And the impact of the quality of our environment on public health is something which is increasingly clear.

Today, policy-makers must respond to every aspect of the environment. As Alfred Zimmern wrote 75 years ago:

"A civilised man is a man who understands the world in which he is living and the forces by which it is moved ... A civilised society is a society equipped with the knowledge to control its environment."

The importance of science

The link between civilisation and knowledge is basic. Not every society that has knowledge is civilised. But without knowledge there can be no civilisation. And true knowledge must be grounded in science.

Without science, there is no technology. Without technology, there can be little wealth creation or economic progress.

As Margaret Thatcher said to the Royal Society in 1988:

"It is mainly by unlocking nature's most basic secrets, whether it be about the structure of matter and the fundamental forces or about the nature of life itself, that we have been able to build the modern world."

Science does not, however, guarantee sound judgment or even an understanding of what is right for Britain and humanity. That is where politicians come in.

Conservative policy reflects the philosophy of protecting and enhancing what is most precious, and the passionate desire to leave future generations a better inheritance than their parents enjoyed.

I believe that the quality, even the survival, of life on Planet Earth will be threatened unless we treat our environment with respect.

I believe that harnessing science and technology to meet these threats is our best hope.

I believe that Britain has talents that can benefit the world, if only we exploit our innovative genius.

Genomics and nanotechnology

Since Margaret Thatcher made her remarks there has been a scientific revolution with the discoveries of the internet, genomics, and nanotechnology at its forefront.

The world-wide-web is one of the most powerful forces for freedom the world has known.

The vocabulary of "genes" has passed into our common language. Virtually everyone knows the meaning of DNA.

Eleven-year-olds talk of microprocessing and nanotechnology.

Each discovery holds out great promise to humankind and British scientists have played an important part in all of them.

At the Sanger Institute in Cambridge, the Roslyn Institute in Edinburgh and elsewhere, we have a wonderful chance to take our knowledge of human structures forward for the benefit of the world. America's decision to withdraw tax funding from stem cell research gives us an opportunity to lead internationally.

Our scientists are learning how our genes can be expressed and activated; that they are not so much a blueprint, as a recipe that can be cooked in different ways.

We will one day be able to repair the faulty gene sequences in Alzheimer's, Huntington's disease, and some of our cancers.

In engineering, our nanotechnologists can already manipulate products to a scale of 1/7000th of a red blood cell and 1/80,000th of the width of a human hair.

In transport, nanotechnology saves lives through the air-bag pressure sensor. The polymers on modern motorcars are reinforced with carbon nanotubes.

The paints are engineered with nanoparticles. The bodywork contains lightweight, heat-resistant nanocomposites. The garage mechanic may wear stay-clean overalls with nanofibres.

All these discoveries present Britain with new challenges, but unless we are at the leading edge in their development, financing and commercial exploitation, we risk becoming a second-rate economy.

The West has reached a remarkable stage. As the American guru Buckminster Fuller wrote in 1980:

"We are blessed with technology that would be indescribable to our forefathers. We have the wherewithal, the know-it-all to feed everybody, clothe everybody, and give every Human on earth a chance ... We now have the option for all humanity to 'make it' successfully on this planet in this lifetime... [But] Whether it is to be Utopia or Oblivion will be a touch-and-go relay race right up to the final moment."

Climate change

Buckminster Fuller's concern was not weapons of mass destruction, terrorism or fanaticism. He saw a greater threat from climatic forces.

The Prime Minister's Chief Scientific Adviser, Sir David King, recently spelled out the same message.

The Earth is warming faster than at any time in the last 10,000 years. We have just passed through the hottest decade in a millennium.

In 2002, the spread of Arctic ice was 14 per cent down on its 24-year average. Glaciers are melting. Mount Kilimanjaro will soon be bare of snow. Oceans and ocean temperatures are rising. Bird life is threatened. The Thames barrier, built to be used about once every five years, is now closed more than five times every year.

Sceptics say this is nothing new. They point to folk memories of Noah's flood and the submerged settlements off the Ganges delta.

Others dispute the scientific evidence, arguing that these changes are no more than cyclical.

But what is different now is that climate change is being exacerbated by man-made

activity.

Every gallon of oil or petrol, every litre of gas, every piece of coal that we burn, adds to the sub-atmospheric gases that are enveloping the planet.

Every year, we spew 23 billion tonnes of CO₂ into the atmosphere - more than 700 tonnes a second of our most serious greenhouse gas.

In the ten years after the Rio summit in 1992, world energy use went up by 20 per cent.

The International Panel on Climate Change forecasts that global temperatures could rise between 2 and 5 degrees Celsius by the end of the century.

Whether you believe these phenomena are natural or man-made, if the environment goes on deteriorating at the present rate, much of the world will become inhospitable and dangerous.

Scientists warn the global climate for the next 50 years is already largely set, because of what has already occurred. Conditions in the second half of the century, however, depend on what we do now.

The challenge is urgent.

The politics of energy

How quickly can we kick our addiction to fossil fuels? In Britain energy policy is driven by four priorities: security of supply; safety in generation, distribution and use; affordability for customers, rich and poor alike; and environmental acceptability.

Within our diverse and liberalised market of primary fuel suppliers, power generators, third-party purchasers and distributors, an independent regulator exercises limited powers.

Government remains the ultimate overseer, with the Treasury as paymaster, the DTI as monitor for energy production, and Defra the catalyst for energy efficiency.

Gas accounts for about two-fifths of our primary energy production, oil for about one-third, with coal and nuclear providing most of the rest, apart from small contributions from biofuels, biomass, hydro-power, wind farms, and geothermal and solar heating.

Gas therefore is critical, but although we are currently the fourth largest gas producer in the world, North Sea production will fall sharply from 2008.

Our volume of gas reserves is only 32nd in the world ranking. By 2010, we could be 50% dependent on imported gas. By 2020, the figure may rise to 80%, an increasing proportion of which will be sourced from countries like Malaysia, Qatar, Algeria, Egypt

and Russia.

Energy supplies aren't secure if they can be disrupted by terrorism, strikes or a breakdown in foreign relations, as we learned to our cost in the 70s, when we were at the mercy of Middle Eastern oil suppliers, the domestic coal industry and some militant trade union leaders.

We cannot ignore these lessons.

Furthermore, as our gas supplies run down, our nuclear plant is being decommissioned. Five of our fifteen nuclear power stations will soon be out of service.

On current trends, the proportion of nuclear energy contributing to British electricity generation will be less than 5% by 2020.

The national margin of error is narrowed further because the Government and the energy providers have cut costs by restricting storage and spare capacity.

In continental Europe, the norm for gas storage capacity is up to 80 days' supply. In Britain, it's 13 days.

Dr Dieter Helm, a member of the Prime Minister's Council for Science and Technology, has described our power generation system as "clapped out."

Eighteen months ago, half London's underground network was closed down and 410,000 consumers suffered power cuts.

New York City, New England and Eastern Canada, and Scandinavia all suffered power cuts over the same period.

Recent Italian cuts have highlighted the risks and complexity of Europe's interconnecting power systems.

The Italian national grid authority blamed faulty supply lines from France.

The French blamed the Swiss. The Swiss blamed a fallen tree. The Italians have now ordered a series of coal-fired power stations.

We could do without this Comedy of Errors.

New sources of energy

All this should provoke a serious national debate, but the Government have ducked it, ignoring threats to the security of our energy supply and the need for coherent policies to achieve our targets for CO2 emissions reduction.

On the nuclear question, Ministers seem determined to avoid making any commitment before the General Election.

Nuclear energy has high costs in up-front development and waste disposal, but as the price of oil rises and the environmental costs of fossil fuels are captured in their price, it may become more competitive.

New technologies are being developed to minimise risk from nuclear generation and waste disposal.

In Britain, there should be an urgent debate in which the advocates of nuclear power can address the concerns of the public on economic outturns, operational safety and waste disposal.

Instead, the Government insist that onshore wind farms are the answer to meeting both our energy needs and our carbon dioxide emission targets, despite the fact that:

- wind farms only generate energy when the wind is blowing, and then not too hard
- they can't store energy, but only pass it on for immediate use,
- they are sometimes opposed by local communities for sound environmental and economic reasons, and
- they can only make a tiny contribution to achieving our renewables target .

The offshore technologies of tidal, wave and wind power hold out promise for our island community. Here, we can achieve international leadership while tapping a valuable renewable source.

But success, in the fullest sense, requires a marine planning framework, so that a proper distinction is made between offshore development sites, shipping lanes and marine conservation areas, and between incentive and subsidy.

Meanwhile, time flies. We need action now to improve energy efficiency and make our energy industry greener.

There's nowhere better to start than at home.

Energy in the home

In Britain, the built environment accounts for about half our total energy consumption. And 30 per cent of the energy we use is in the home, with over one third of that in space heating and hot water.

45% of homes in Britain were built more than 50 years ago, a much higher proportion than France, Germany and America. A recent survey showed that two-thirds of our dwellings have lower than acceptable standards of energy efficiency.

The next Conservative government will consult on giving tax incentives for greener homes.

At present, a million new homes are planned for southern England alone. One and a half million house owners change their properties every year. The owners of all these homes could be incentivised.

I want to tackle the 9 million unfilled cavity walls. I want the 1.2 million boilers that will be installed this year to be the most energy efficient available.

If people market their houses with best-practice insulation, time clocks and thermostats, one way to reward them would be by cutting stamp duty if they meet the qualifying standard, and we are consulting on how this might be done.

We could provide premium incentives for the use of advanced systems such as automatic switching and solar panels.

I want to consult on how we can work towards a zero emissions standard for new homes. "Intelligent houses" where lights and heating are only on when needed; where computers, televisions and household appliances do not burn excess energy in operation or stand-by mode; and where HFCs are eliminated, - these houses are the future.

These are some immediate steps. In the longer term, we must invest in scientific and technological research to advance our knowledge of nuclear fusion and waste disposal, photovoltaics, fuel cell technology and microgeneration.

Transport emissions

Transport is a greater consumer of energy than our homes, and a more serious pollutant, accounting for over one-third of Britain's energy use and about a quarter of our CO₂ emissions.

But an efficient road network is essential. Without it, business is disadvantaged and families find their freedom of movement restricted. Happily, by harnessing modern technology, it is possible to create a transport infrastructure which can both help businesses and individuals prosper and at the same time achieve a greener, safer Britain.

To accelerate progress, we must make greater use of market incentives.

Britain should be at the forefront in developing hybrid vehicles that cut the use of fossil fuels.

I have already announced our intention to widen differentials on Vehicle Excise Duty in favour of greener vehicles, in a revenue neutral manner.

Besides greener cars, we need roads that deliver shorter journey times, greater safety and less noise.

Labour's cut in the road building programme, part of its war on the motorist, means our roads are more congested and polluted than ever.

Ministers are now dithering about road pricing.

Road pricing could indeed help ration the use of a scarce resource and make polluters pay for their damage.

But British drivers already pay heavy motoring taxes and would clearly not find it acceptable to pay still more to travel on the existing network. They are looking for extra benefits, - safer, faster, less stressful journeys, better landscaping, and less noise and pollution.

The M6 Toll, a Conservative initiative, is a positive example of road pricing - used for over 50,000 journeys a day, managed by a private-sector institution, and acceptable to drivers.

Instead of pursuing such schemes, Alistair Darling is committing the country to delays of up to 15 years. A Conservative Government will act with a sense of urgency, moving ahead quickly in partnership with the private sector.

I am already discussing with financial institutions how they could invest in the maintenance and improvement of the national road network and I hope to say more on this topic before the Election.

Broader transport strategies

In our small island, we should encourage our aviation and rail services to take significant shares of the passenger and freight carriage markets.

We must improve our bus, tram and light rail services, too.

But aviation emissions are the fastest growing transport source of CO2 emissions. Jet fuel combustion has between twice and four times the environmental impact as similar combustion at ground level and causes 11 per cent of total UK climate change impact.

Aircraft fuel is generally untaxed. Discussions have taken place between the International Civil Aviation Organisation and the European Commission about an approach involving a fuel levy together with an extension of the European Emissions Trading Scheme.

But Labour continues to vacillate.

As the Royal Commission on Environmental Progress has observed:

"Rapid growth in air transport is in fundamental contradiction to the Government's stated goal of sustainable development ...

The government shows little sign of having recognised that action to reduce the impacts of air transport is just as important as action in other sectors."

Is it right, for example, for a Government to allow runway expansion in South-East England before there's a robust emissions regime?

On railways, too, the Government has run out of political will, even though we have no shortage of entrepreneurs, industrialists and financiers to take the network forward.

Schemes like the East Coast Main Line upgrade between London and Edinburgh, Thameslink 2000 and Crossrail are all in the long grass.

The Strategic Rail Authority which Labour set up to provide leadership and funding for the rail industry is now being abolished.

Yet, since privatisation, more people are travelling by train than for almost half a century.

New investment by the private sector exceeded £4 billion last year.

A Conservative Government will build on this momentum by looking at the travel experience of passengers, starting with stations.

Compare the average railway station with a modern airport. Airports have covered car parking, good shops, and waiting rooms with internet links and other business facilities.

Few stations have any of these. They are unwelcoming and sometimes dangerous.

Commuter trains are often crowded with nowhere to sit. Platforms are too short for the longer trains that would solve overcrowding.

I intend to nominate 100 stations for urgent upgrade funded by commercial investors, who will be invited to exploit the development potential these stations offer.

We are convinced Network Rail can achieve significant savings without prejudicing safety or operational efficiency. We will ask them to use some of their budget to create more passing points on busy main lines, so that slow freight trains don't block fast passenger routes.

I will back these immediate, practical steps with other initiatives to bring our railways into the 21st century.

In Europe, France has led the way with the TGV. Our British lines, with one exception, are unable to carry it.

We are the world's fourth largest economy, yet we have nothing to compare with the Transrapid maglev link in Shanghai, which takes passengers 30 kilometres from airport to city centre in seven and a half minutes.

It is sad that although Britain invented the Hovercraft, today German and Japanese companies are exploiting magnetic levitation for rail travel.

This brings me back to a core question. How can we turn British science and technology into practical and commercial gain?

Britain's shortcomings

Scientific and technological innovation and implementation are the way to achieve better environmental performance without inhibiting growth.

Technology holds the key to unlocking the win-win scenario of economic expansion for a higher world population, while preserving the integrity of our planet.

Why do we so often depend on others to convert British invention to practical benefit?

Britain is not at a happy point in its history. In spite of our inventive genius and the excellence of our universities, scientists and engineers, we suffer from cultural and educational shortcomings.

From the dawn of the Industrial Revolution until 50 years ago, we led the world in manufacturing. Today, most science-based manufacturing belongs to America, Germany and Japan, while craft manufacture has emigrated to the crouching tiger economies. Why?

An American official put it like this:

"American science takes advantage of competitiveness and creativity, with an emphasis on the individual rather than the institution. In the US, there is more interaction and movement between government, academia and business. The senior leadership in other countries are too involved in saying what ought to be done, rather than in making it happen or participating in the result."

I believe Britain's difficulties arise in the areas of culture, attitude and education.

Too often, our technological initiatives are supervised by administrators and led by committees. Our culture is to love words, processes and documents. We have over-elaborate organisational structures. Our science spending is weighed down by red tape and regulation.

In attitude, we are discursive and consensual. In government and academia, we are

insufficiently businesslike and don't involve business people enough in making things happen. We are bad at exploiting science commercially.

Our educational standards have declined. One-third of 11-year-olds cannot read, write or do maths properly. Teenagers are turned off by boring curricula. We teach essay-writing instead of practical skills to the less academic. Our GCSE and A Levels have become discredited. We are short of maths and science teachers. University physics departments are closing down.

In all these areas, Labour's seven years in office have made things worse. They talk about Britain becoming the world "capital of science", but lack the ideas or the will to make it happen.

If Labour's higher education policy is allowed to succeed, we will have the largest and least fulfilled graduate population in the world.

Automotive research

Let's return to the motor industry. It employs 240,000 people producing 1.8 million vehicles a year.

Today it needs to develop alternatively powered vehicles, with the eventual aim of replacing the internal combustion engine with engines based on fuel cells, to make hydrogen and oxygen into water, and convert the chemical energy into electricity and heat.

These would operate at low temperatures, produce no pollutant particles and emit much lower quantities of CO₂.

Fuel cells were first demonstrated by a British physicist, Sir William Grove in 1839, and used by a Cambridge engineer Francis Bacon in the late 1950s to power a welding machine. But the big modern advances have been in America as part of the NASA space programme.

Turning this technology into a low-cost engine for mass-produced cars is no small matter. How are we progressing compared with the Americans?

The Labour government set up a Centre of Automotive Excellence in Fuel Cell and Low Carbon Technology. A Low Carbon Vehicle Partnership R&D Working Group began work.

They've developed "a matrix of desirable demonstration projects."

They are carrying out "a benchmarking exercise of current UK support programmes and capabilities."

They want to "provide a support framework and communications capability that encourages ... stakeholders to engage proactively ..." and to "provide a forum for industry, Government and other partners to liaise on upcoming policy developments and regulatory issues."

In America, the FreedomCAR Partnership was set up between the Department for Energy, the US Council for Automotive Research, and DaimlerChrysler, Ford and General Motors.

For the second year running, the Partnership has published a report listing its technical advances.

These include the design of:

- durable, low cost fuel cell catalysts,
- tanks for hydrogen storage,
- high voltage power modules,
- cheaper lithium-ion batteries,
- new standards of combustion efficiency,
- lower temperature diesel combustion, and
- lightweight aluminium and magnesium casting.

The American style of R&D leadership is practical, businesslike and output-oriented. You don't get results by sitting in committee, but by working at the sharp end.

That is the message for Britain.

Vision and leadership in science

Britain's research culture, by which I mean the administrative rather than the scientific framework, is conditioned by the Government's Office of Science and Technology.

The OST funds six grant-awarding Research Councils covering medicine, biotechnology, engineering and the physical sciences, the natural environment, particle physics and astronomy, and economic and social research.

The Research Councils are directed by talented people and support tens of thousands of research projects that are evaluated by peer groups. They award half their funds to university researchers and postgraduate trainees. Most of the rest goes to specialist laboratories and institutions, covering anything from stem cell research to the British Antarctic Survey.

The quality of British science is borne out by our Nobel Prize awards and the number of British scientific papers published and cited internationally. But bureaucracy stops us being as effective as we could be in focussing our efforts or exploiting the results.

The Research Councils are co-ordinated by an umbrella body called Research Councils UK, set up by Labour in May 2002.

RCUK is a forum of Research Council chief executives chaired by the Director General of Research Councils.

The Director General is chief accounting officer of the Office of Science and Technology, which is a division of the Department of Trade and Industry. The DTI takes its orders from the Treasury.

Scientific direction and management are perpetually hampered by political intervention and government bureaucracy.

Two other bodies in this country could give a stronger lead, if encouraged to do so.

The Council for Science and Technology is the Prime Minister's principle advisory body on the sciences and has a galaxy of talent and experience.

The Royal Society makes an exceptional contribution to the national science debate.

But our highly educated and articulate civil service try to run the country through their Ministers, and Ministers have grown used to running the country through them.

Our civil servants are better qualified at designing targets and producing reports than at designing technologies and producing 21st-century applications.

So our science community is given scorecards and a new "Investment Framework" to be "addressed"; documents to be produced for the DTI's Innovation Report; relationships to be formed with the Regional Development Agencies as new "stakeholders."

Those who spend the £3 billion science budget should, of course, be accountable to parliament, but there must be a better way than asking them to dance to the daily tune of the whistlers of Whitehall. In America they do it differently.

Their National Science Foundation is an independent agency; RCUK is not. The NSF reports to Congress annually, not to government officials daily.

The NSF has an external chairman and an independent board of 24. RCUK is part of the state bureaucracy.

The NSF is an integrated, businesslike organisation; RCUK is a committee and the Research Councils are its fiefdoms.

The NSF treats computing, maths and their cross-cutting effects, as three separate disciplines, each needing weight, focus and application. The UK Research Councils have retained their traditional titles.

What we need is less pride and prejudice, and more sense and sensibility.

In lifting our eyes to the challenges ahead, we might reflect on what John Stuart Mill wrote 150 years ago:

"Is there not the earth itself, its forests and waters, above and below the surface? These are the inheritance of the human race ...

What rights, and under what conditions, a person shall be allowed to exercise over any portion of this common inheritance cannot be left undecided. No function of government is less optional than the regulation of these things, or more completely involved in the idea of a civilised society."

Our duty as politicians is to the lives and well-being of our people, not only those who are alive, but those yet unborn. In this, the development of science and technology is critical.

Alongside the threat we face today from terrorism is another threat, from ourselves and what we do to Planet Earth. The future of humankind depends on our safeguarding our environment.

The advances we have made in science and technology give us an unrivalled opportunity.

We must harness our British genius not just for medical and economic gain, but to combat the risks of climate change.

We must be wise enough to avoid depending for our energy on those who will accept the Queen's shilling, but wish us no good.

We must be sane enough to modify our uses of energy and change our lifestyles.

We must be clear-headed enough to weigh up the merits of alternative sources of energy, including nuclear.

A Conservative government will set a new range of tasks:

- to make our homes and transport greener, as well as more comfortable, safe and secure;
- to harness British science to create a better, cleaner, as well as more prosperous world; and
- to redouble our international efforts to protect our common inheritance."