

POLITICS OF ENGINEERING

Ingenia invited representatives from the three largest political parties to tell its readers why engineering is important to them. Here are their responses – in alphabetical order of party.



Adam Afriye
Shadow Minister for Science and Innovation

As the country looks towards an election, it is clear that Britain needs a change of direction. The Government has incurred £86,000 of debt for every household. The UK has the biggest budget deficit in the developed world and will be the last G7 country out of recession. There can be no doubt that tough decisions lie ahead.

Yet, despite the gloom, I am optimistic for the future. Ken Clarke, Shadow Secretary of State for Business, Innovation and Skills, and my colleagues in the Shadow Business team have been working hard to put Britain on the path to recovery. For too long Britain has neglected its potential to be a world-class leader in science, engineering and technology. That much was clear from the *Listening to Business* event we held at the Institution of Civil Engineers in July. Ultimately, the pace of innovation will determine the UK's place in the world and, as we know, innovation is not just about research. It also involves processes of design, manufacturing and engineering that turn great ideas into new products and services.

Conservatives want Britain to be open for business once more. We want to see a thriving high-tech, research intensive and innovative business sector, and there can be no doubt that engineers will be at the heart of our plans. Yet many in the engineering profession, not least The Royal Academy of Engineering, remain concerned about the

recruitment and retention of engineers. There is definitely scope for some high-level political commitment to make the case for careers in engineering. Engineering is more than just the important tasks of building bridges and railways. The UK's leading high-tech industries – from life sciences and aerospace to new low-carbon areas – rely heavily on engineering skills. Engineering is an approach to problem-solving that's sorely needed for Britain's recovery.

Britain needs a supply of young people coming through the pipeline who are keen to concentrate their ideas and ingenuity in ways that support high-value jobs, products and services in these sectors. We have to re-engineer the mess of Government business support and review wasteful regional quangos to ensure public money is spent effectively. And the Government has to deconstruct the unnecessary barriers to starting a high-tech business, whether through better use of public procurement or support for early stage finance. Government is uniquely placed to act as a lead customer for promising new technologies and we want to see much more focus on getting ideas through the proof-of-concept stage, especially for small businesses.

Conservatives have already set out plans to offer every high-achieving graduate in maths or a rigorous science subject from a good university the chance to have their student loan paid off if they opt to go into teaching. We have asked Sir James Dyson to lead a Conservative taskforce that will help meet our objective to transform Britain into the leading European high-tech manufacturer and exporter. The taskforce will also look at ways to support research,

innovation, trade and enterprise alongside our policies to tackle burdensome regulation and ensure the delivery of a modern broadband network.

During 2009 it was a pleasure to visit so many parts of the UK with a strong engineering pedigree – including Manchester, birthplace of the industrial revolution, and Cambridge, home to a leading high-tech cluster of businesses. These places remind me of all that the nation can achieve through engineering. Our world-class scientists and engineers, our inventors and entrepreneurs – all must be open for business.

Our country needs a change of direction. I am confident that Britain has what it takes to succeed.



Lord Drayson
Minister for Science and Innovation

Securing economic growth after the greatest global financial crisis since the 1930s is Labour's priority. Engineering will be crucial to the future success of the UK and the right foundations need to be laid now.

There is sometimes a misconception that the UK no longer makes things. It's not true. Britain ranks as the world's sixth largest manufacturing economy. UK engineering is anything but an historical footnote and exporting high-quality products to the rest of the world remains as important as ever.

Indeed, the UK possesses great strengths. Besides the US, the UK aerospace industry is the most commercially successful, with an annual turnover of around £20 billion. The UK currently outperforms every other country in attracting foreign direct investment for manufacturing. It is pioneering engineering in next-generation industries such as plastics electronics and nanotech. UK universities are attracting more STEM students at both the undergraduate and postgraduate levels, while there are more STEM-related apprenticeships.

And yet, more countries will try to gain market share in new sectors that demand engineering. At the same time, the move to a low-carbon economy requires a change in the way we as a nation produce goods, heat our homes and use transport.

But going green will also create global demand for innovative solutions and new manufacturing processes. These markets are already expanding and the UK needs to compete in them – seizing every opportunity in the aftermath of the downturn.

For Labour, Government has a clear role to play: to lock-in the recovery, we need an active industrial strategy that invests in the UK's fundamental strengths. Engineering is intrinsic to every one of these key sectors.

That is why we are investing in the development of next-generation offshore wind blades in the North East. In Bristol, we've invested in a new national centre for composites to support the development of high-value goods such as aircraft wings and automotive components. Elsewhere, we're supporting – to the tune of £45 million – R&D led by Rolls-Royce into the development of low-carbon aircraft engine technologies.

There's no doubt that the UK stands to gain from moving the focus of our manufacturing base towards technology-driven, high value-added operations. But we must also coordinate the efforts of that base to meet the vast challenges of a low-carbon world.

That's the thinking behind the creation of the Office for Low Emission Vehicles (OLEV), through which central and local government are working with automotive, power generators, infrastructure companies and others to address the nexus of issues around the electrification of personal transport.

OLEV is coordinating over £400 million in direct government support for, amongst other things, the world's largest electric vehicle and plug-in hybrid car demonstrator competition.

None of these decisions were taken by chance. They required political will. By setting themselves against the fiscal measures necessary to enhance our industrial capabilities, the Conservatives have demonstrated their unwillingness to back engineering that is so vital for the future.

In my mind, there is a clear choice facing the country at the next general election: go for growth or choke off economic recovery.



Dr Evan Harris MP
Liberal Democrat spokesman for Science

The Liberal Democrats have long recognised that while the UK must continue to invest in cutting-edge science, it is the engineer who delivers technology and infrastructure to the end user – whether in the development of new forms of renewable energy, robotics for space, or new artificial organisms.

Liberal Democrats know that while our engineering community is held in the highest regard, we lack the capacity to provide the engineering skills the nation needs. Engineering UK (the former Engineering and Technology Board) has estimated that we need 226,000 new engineers by 2017. Yet, with the number of 15-24 year olds expected to decline by 8% and with some 7.4% fewer engineers graduating than in 2004, a strategy for engineering is a priority.

Skills are at the heart of the Liberal Democrats' approach. We will encourage more young people to study STEM (science, technology, engineering and maths) subjects. We will support universities in attracting those students to study engineering. And we will rebalance our economy so that it is less reliant on its demonstrably shaky financial services foundations and instead transform it into a knowledge-based economy with engineering as a pillar.

The task begins in our schools. Our party has long argued for a greater focus on STEM subjects in schools with every young person

entitled to take three core science subjects taught by qualified specialist teachers. It is not acceptable that able, bright, and curious students are consigned to study basic science in order to tick a GCSE league table box when they would excel at taking Physics, Chemistry and Biology, creating options for career development currently denied. Such young people also need to work with materials to solve problems. Whether this is through design and technology, textiles, electronics, or plastics, young people should see that they can solve difficult problems with science.

We also fear that not enough is done to show students the value of a career in engineering. We would look to bring in, for the first time, a mechanism whereby schools are audited on the basis of their careers advice. Poorly performing schools would be given support, including from industry, in improving their service to students.

And that career path must have a number of options. Our measures would begin to address and improve the numbers currently studying Engineering at university. Our higher education system remains largely publicly funded, so we see no reason why we should not prioritise strategically important subjects such as Engineering (as well as sciences and modern languages) over less economically valuable subjects.

But university must not be seen as the default option – far more people are needed to fill the ever-increasing need for technical skills. It is here where the Liberal Democrats continue to champion apprenticeships. We vigorously support industry-led, state-supported apprenticeships for 16-50 year olds, without setting arbitrary targets.

Finally, the Liberal Democrats recognise that to recruit, retain and satisfy the career demands of a new generation of engineers, the UK must continue to invest in Research and Development. Without opportunities to build the new power stations, the next-generation low-carbon transport networks, and to develop new bioengineering technologies, the genius of UK engineering will wane.

The Government target of 2.5% of GDP spent on research and development is woefully unambitious. We believe we must – at least – match the ambitions of the US and the EU. Now that's an engineering challenge for the future!