Transcript

CHATHAM HOUSE
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Fuelling the Innovation Economy: China and the UK

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Robin Niblett

We're very pleased to welcome Minister Li to Chatham House. We have a long collaborative relationship of working together on a number of projects. We worked with our Energy, Environment and Resources team on topics of resource sustainability – or as it is now, resource governance – but also prior to that on the low-carbon economy and low-carbon growth. Having the opportunity now to work with our colleagues at the Development Research Center on this new set of projects, with an MOU we've just signed, is a great pleasure to us and we look forward to that work.

I'm very pleased that David Willetts will also be able to join us today for our discussion that we're going to be able to do today, particularly on the issue of innovation in the development and growth strategies of China and of the UK. Therefore, to have David Willetts here, who is the minister for universities and science, a position he's held since the current government took up governing the country, is a pleasure – not least also because David is somebody who we know from our think tank world is somebody who spends a lot of time thinking about the future, writing about the future in many cases as well. He's held a number of the senior shadow positions prior to the government coming into power now but also served in the previous Conservative government as paymaster general, working as a Cabinet Office minister as well. So David, thank you very much on what I know is an especially busy day for you today, with all the ministers, to make the time to join us.

What we're going to do is hear some opening remarks, first from Minister Li and then from David Willetts. Those remarks will be on the record. Then we'll have a little bit of time for some questions and answers with you, but we really do need to try to tie this meeting up as close to two o'clock – we might drift to five past two if we have to.

Minister Li, welcome to Chatham House again. We look forward to your remarks.

Minister Li Wei

[in translation] Respected Mr Niblett, Minister Willetts, ladies and gentlemen: good afternoon. It is a great honour for me to come to the historic and world-renowned Chatham House to give this speech. My colleagues and I are delighted to be here to have a chat in the house, in the spirit of openness, to give you a speech.

You know that three weeks ago, Premier Li Keqiang visited the UK. It was a very successful visit. Witnessed by David Cameron and Premier Li Kiqiang, both sides signed some very important agreements. Energy is the key area. Strengthening energy cooperation is an important consensus reached by the two sides. Premier Li, in a meeting co-hosted by the Royal Institute for International Affairs and the International Institute for Strategic Studies, gave a very important speech. So this event is an activity to implement the agreements reached by the leaders of both sides. I would like to thank Chatham House for their arrangements and I'd like to thank the participation of all of you.

Next, I will talk about my opinions about innovation in energy technology. First, energy technology innovation can create a greener, more sustainable and brighter tomorrow. Energy is the material basis for modern society. It is also a driving force for humans' social progress. Historically, the invention of the steam engine has replaced the labour force with machines, and the invention of electricity has realized the convenient use of energy and made the production line possible. These breakthroughs in energy

technology have not only changed the energy system itself but also caused a first and second industrial revolution. It has made great contributions to social productivity and human blessings.

Of course, rapid development has also caused problems, like environmental pollution and resource depletion and global warming. Especially, the rapid change in people's behaviour and their increased pursuit of life quality has increased the pressure on energy, and the competition for energy and resources has also caused tensions internationally or even regional conflicts. However, we will not stop here. People will continue to pursue a happy life and we all need to address the problem of sustainable development.

At present, in renewable energies like wind, solar and tidal power, in areas like shale gas and shale oil, also in terms of new generation of nuclear technology, in electric cars and intelligent buildings, there have been a series of major technological breakthroughs. A new generation of the energy system is taking shape. Together with the technology of the internet, new material and bio-technology, they have entered a chapter of the third industrial revolution. We believe the wisdom of humans and their creativity will not go dry. There is no limit to growth. Resources can be sustainable. We will have a better future tomorrow.

Second, the way to address China's energy problems lies in innovation. China is one of the major consumers of energy in the world. For a very long time, it will maintain a very fast growing speed. This is an issue that has drawn much attention from the whole world but I want to say that this is not China's fault. That's because, first, China's population accounts for nearly one-fifth of the world's total. With that, we need to have a large energy consumption.

Second, China's energy consumption has provided a lot of cheap and practical commodities for a lot of countries. A cheap labour force and resource consumption has helped a lot of countries, at least in the past 20 years, to decrease their rising speed of GPI. According to our estimates, even if China's economic growth reduced from 10 per cent to 7 per cent, in the future 10 years China's energy consumption will be maintained at a growth rate of about 4 per cent.

China's air pollution, especially the pollution of PM2.5, has become a focus of public attention. In some sense, it has reached the limit for people's healthy existence. In terms of greenhouse gas emissions, China is a developing country. Development is the major task for China. But we have also clearly realized the danger of climate change to China and the whole world. China is going to make a contribution to the global efforts of controlling climate change which is according to our development stage.

When we study China's energy strategy, we feel that China's energy problem is a global problem. Other countries' energy consumption or demand cannot be compared with that of China. We have limited resources and pressing environmental problems. A lot of you might know that China's proportion to the energy consumption is at a great contrast.

Recently, President Xi Jinping has made important speeches about the energy issue and pointed out that China should realize the energy consumption revolution, the energy supply revolution, the energy technology revolution and system revolution – that is to say, China should be committed to a new energy development path to build high-efficient, green and safe energy system. In this system, we do not only need new renewable energy, intelligent energy technology; we also need traditional oil and gas technology and nuclear energy, and also energy-saving technology.

All of these technologies are very useful in China. China has also realized the role that innovation can play in the energy system. In recent years, 70 per cent of the energy saved in China comes from the application of new equipment. Solar power and wind power have increased capacity rapidly. In 2013 the installed

capacity of China's wind power ranked first in the world and reached 914.2 million kilowatts. In terms of development, the application of new technology is going to play a very important role.

Third, China's energy technology innovation is going to realize the goal of leading the world. Now, China's steel industry and aluminium industry, their energy consumption has reached the world's average level. The super-critical power and electricity generation has been leading in the world. We have built a first generation of nuclear power generation and we are ready to export the technologies, products and services.

Next, China is going to use advanced technologies globally into China. However, if we just stop at the technology level, it cannot meet the demands for energy technology innovation. To solve China's energy problem is to contribute to global sustainability. China is going to work with the international community to make greater contributions in terms of providing innovative technology, products and services.

The Chinese government attaches great importance to technology innovation. President Xi Jinping recently at a conference called for innovation, innovation and innovation. China has increased its investment in technology innovation. In 2013, China's R&D investment accounted for 2.09 per cent of GDP, which is close to the level of the EU and the UK. Considering China's economy aggregate and development stage, this is a very huge investment. Among developing countries, China made the largest investment in this area.

Investment in energy is a very important area. We included oil and gas development and large-scale nuclear electricity into the 60 major technology projects. We have a lot of investment in renewable energy and we have made progress in some technologies. China's oil and coal technology level ranks among the top in the world and we have a lot of patents in this area, but we have clearly realized that in order to realize innovation we need the accumulation of technology, talent and the science and technology research system. We still have a weak foundation and a not sound enough system. So it takes quite a long time for us to become a leader in terms of energy technology innovation. However, I believe that with our efforts, with our reform of the system, China will be able to make a greater contribution in energy technology innovation.

Fourth, we are going to increase and promote innovation through open collaboration. Openness and collaboration has become a major trend in technology innovation. It is not confined in a company, a region or a nation. More and more companies are integrating talents, technology and capital around the world to innovate. In the area of new energy, China has a lot of case studies. A lot of companies have employees coming back from overseas. They have mastered advanced technologies and knowledge. Also, Chinese companies are making use of international capital markets to recruit talent and to produce new energy products for export to other countries.

So we should continue to support such open innovation, to give full play to the advantages of different countries. Also, we should play the role of the market in resource allocation. We also should let government play their role in terms of formulating environmental tax so as to provide further driving force to energy technological innovation. At the same time, we should strengthen our protection of IPR to protect the interests of innovators, to optimize our policy environment, so as to attract more talent to China to start up their business, to research and develop, to provide a better environment for them.

On the other hand, the international community should adapt to the fact that China is emerging from the innovation area, to consider China's condition objectively, to give China fair and just treatment in terms

of international trade and green-field investment. This is not only good for China but also good for the global sustainability.

This morning, I had a discussion with experts from Chatham House. They are very positive about the future development of China but they also provided us with a lot of suggestions. I would like to share with you my view that China is implementing a socialist market economy but we only have 20 years of experience. However, for developed countries, you have 200 years of such experience. So within 20 years for China, we have made such achievements. I think it's not easy.

The key is the Chinese government, the party and the Chinese people are even more concerned about such problems than you are. We also want a very happy life. So ladies and gentlemen, as a think tank, our Development Research Center is committed to the collaboration of research between the two countries, especially in terms of policy study. Last year, witnessed by the leaders from two countries, the DRC and Shell signed an agreement about the China natural gas development strategy. This is another important cooperation project between our two countries.

When the prime minister visited the UK, it was proposed we should hold an innovation forum between China and the UK and the host will be DRC. I don't know who will be our counterparts from the UK. I hope it would be Chatham House. DRC and Chatham House have been cooperating for a long time, including on the low-carbon economy and low-carbon industrialization. Now we are collaborating on a project for research of global resources. Just now we signed an MOU. I hope that through our cooperation we can share experience and exchange about policies, so as to promote global green and low-carbon development.

Ladies and gentlemen, Lao-tzu once said the journey of a thousand miles starts from a small step. A British poet said, let today light up tomorrow. Let our two countries work together regardless of our nationality, regardless of our colour, to strengthen energy technology innovation for a better tomorrow.

I'd like to thank Chatham House for your invitation. Thank you very much.

Robin Niblett

David, if I could invite you to offer some remarks in reply.

David Willetts

Thank you very much indeed. It's a great pleasure to be here at Chatham House and to welcome Minister Li to this event. Perhaps our Chinese guest was slightly surprised that the Tour de France seems to include London. He was too polite to ask how this had happened. There are obviously several possibilities. It could mean that French power is now so great that they have decided to run their bicycle races through the UK. I don't know what Chatham would think of that. Or it could mean that now Britain is such a favourable environment that almost everything in France is moving to London – their banks, their businesses and now their cycle races. But it's not for me to comment on which of those is the explanation.

It's marvellous that we have with us the leader of China's main think tank. All three of us on the panel have a shared belief in the importance of think tanks in shaping policy and leading ideas. Of course here

Chatham House is very fortunate to have Robin as its director. I remember Robin and I first working together when you were in Washington, DC, in the CSIS. I myself ran a think tank before becoming a member of parliament: the Centre for Policy Studies, founded by Margaret Thatcher.

I remember in the 1980s, in the early days of Deng Xiaoping, a group of Chinese researchers turning up to visit us in our small Georgian house in Wilfred Street, discussing our market reforms that Margaret Thatcher was doing. It was a very small building. As they left, a Chinese visitor said to me: perhaps next time we come, we can visit your headquarters. Let me just say that I very much hope next time I go to Beijing I'm able to visit your headquarters, Minister Li, to discuss this very important theme that we're talking about today – science and technology and, of course, innovation, especially as applied to energy.

I think one reason why we are sharing this subject today is that we all understand that innovation cannot simply be done within the framework of one discipline, within the framework of one technology or even of one country. We can learn from each other. Certainly, our experience in Britain is that the most exciting innovations come precisely when different disciplines or people from different backgrounds come together. Indeed, we did a survey of our Nobel Prize winners and found that more than half of the Nobel Prize winners that we had here had either moved discipline – been trained as a physicist and ended up getting a prize in chemistry or something – or had moved country. But whatever, they had something which had changed their perspective on things very significantly. We think that is a crucial part of the challenge.

Of course, the roots of innovation lie in excellent science and technology. We are very proud of the quality of our science here in Britain. We recognize increasingly the role of government in promoting the big general-purpose technologies of the future. I call them, in the British context, our eight great technologies. I'm told 'eight great technologies' translates very well in Chinese – eight is a lucky number in Chinese. In fact, I almost think the expression 'eight great technologies', I must have been assuming a Chinese model when I formulated it in that way.

But those are, very simply, that first of all we start with big data and high-performance computing and the power you need in the digital age to analyse data. We then identify two significant technological advances linked to data. First of all, robotics and autonomous systems, where really it's fantastic advances in software that are making modern robotics and autonomous systems possible. Also, third on the list was space and satellite systems – satellites a very important source of data now. Farmers want to monitor the quality of their crops and know what's happening to their fields – they might well be using satellite data to do so.

Then there were, of course, the advances in technologies from the life sciences, beginning with the understanding of the significance of DNA. Every single genetic sequencing technology has been invented and developed in the UK and we are very proud of the role that we play in applications of that, like synthetic biology, where China and its learned societies, Britain and the US, are working together. There's regenerative medicine. There is, sixth on the list, agricultural technologies.

So we've got the IT and the database technologies, we've got the life-science-based technologies. But the last two on my list were probably most relevant to the theme of this conference today: the advanced materials, where exciting progress is being made, and also energy – new sources of energy, energy storage.

Let me briefly respond to your very important remarks, Minister Li, by saying we in the British government, of course, begin as you do: by recognizing the significance of climate change as a challenge

for both of our countries and for the whole world. And that as we rise to that challenge, yes, there will indeed be continuing use of conventional energy sources. That we are proud of our role in promoting some of the technologies that reduce climate impact, such as carbon capture and storage linked to coal-fired power stations. There will also be, as you rightly said, renewable energy sources, harnessing the power of the tide, the wind and others. There are very innovative sources in terms of, say, synthetic biology – I co-chair a synthetic biology leadership council here in the UK. They say it is a technology that will feed us, fuel us and heal us. We have already, for example, a spin-out from Imperial College, from people who have created a new organism which eats rubbish and produces bio-ethanol, which is a very important – and it's a technology we've taken to Brazil, where they already have the infrastructure for using the bio-ethanol.

And also, as part of rising to the energy challenge, we must be more intelligent in our uses of energy, monitoring our consumption of energy. That's why we're very excited by the prospects for smart metering and why the 'internet of things', a very exciting development, will I'm sure as one of its uses enable us to have better control of our energy use than ever before. I have discussed this with Huawei and I'm very pleased that Huawei are working with us in some of these technological advances.

So there's a lot happening in science and technology that will feed into a much smarter and much less energy-intensive economic development for the future.

But as well as that, on top of those advances in science and technology is that extra magical feature that creates real innovation, which is often something that nobody could completely plan for. I think of the scientists that I visited in one of our life science labs who were tracking the activity of individual brain cells. What they were using for the software programme for this incredibly delicate task, but also one that operates in very high volumes, is they were using a software programme that had been developed by the astronomy department of their university for picking up signals from remote stars and planets. The software that had been used for large numbers of very faint signals coming from distant stars worked very well when you were trying to monitor the activities of large numbers of brain cells. It's that kind of mixing and matching of different applications and different technologies that promotes true innovation, and it's something that we strongly support here in Britain.

But for us really to make progress, we need to work together. That's why I wanted to conclude just by celebrating some of the connections that we have already made between our two countries and very much hope that they will be closer and stronger in the future.

We are very proud of the launch of the UK-China Research and Innovation Partnership Fund, or the Newton Fund as we call it in the United Kingdom. I was with our prime minister in Beijing when he originally launched it with Premier Li in December of last year. Last month when Premier Li was over here and several of us had the privilege of meeting him, we did sign for the Research and Innovation Partnership Fund our first practical agreements. It's an overall fund for £200 million over the next five years. We've already identified projects to the tune of £50 million, which we announced at the summit. This enables British scientists and technologists and Chinese scientists and technologists to work together more closely than ever before.

Indeed, I remember really this is a response to a challenge which the previous premier, Premier Wen, put to us when he was in Britain in 2011. He said that China looked to a research and science partnership with the UK and suggested a shared fund. I remember the prime minister writing a little note, because this for us was a surprise – a very pleasant surprise, but a surprise – something like: can we do it? He passed it to the foreign secretary, who passed it to the chancellor, and eventually round down the line at me. I

scribbled on it: nice idea but we have no money. It was passed back up the line to the prime minister to give his response. Well, that was our response back in 2011 but I'm pleased to say now we have got the funding and so we now are making it happen. I'm delighted that it's happening.

As well as that, we've also got progress in the crucial area of innovation cooperation. I signed a memorandum of understanding between the UK and China with the Chinese Ministry of Science and Technology in 2012. We signed a further MOU in December 2013, which formally established a UK-China joint working group on innovation. The UK group consists of representatives from the academic and business communities and innovation funding bodies. It will meet to discuss important areas where we can work together.

I was very encouraged by what you just said, Minister Li, because we very much hope that this group will be able to meet soon and make recommendations to the UK and Chinese governments in early 2015 about how we can work together further on innovation, that could be incorporated into a future joint strategy. I cannot think of a better area where our two countries can work together, and your visit has already today given new impetus to that very important project. Thank you very much indeed.

Robin Niblett

Thank you very much, David. Let's try, if we can, to take ten minutes to at least tease a couple of these issues out a bit more with a couple of questions for our two guests. I find it particularly interesting, David, your comment about innovation being one split across sectors, countries, disciplines – in other words, there's some creative process to innovation which goes beyond just simply studying in one direction.

I think Minister Li made a number of interesting points there but in particular that already energy consumption, the increase of it is increasing lower than GDP growth – 4 per cent today versus maybe 7 per cent growth. I understand you want to take it lower, get it down to maybe 1.5 per cent or something like that over time. This would be something we're very interested in looking at, at Chatham House as well. Can you disconnect energy consumption and growth somehow over the coming years?

I've got a bunch of questions I could ask but you've all come and been very patient and braved the Tour de France to get here and so on, so let me get two or three comments from our audience.