friends of europe

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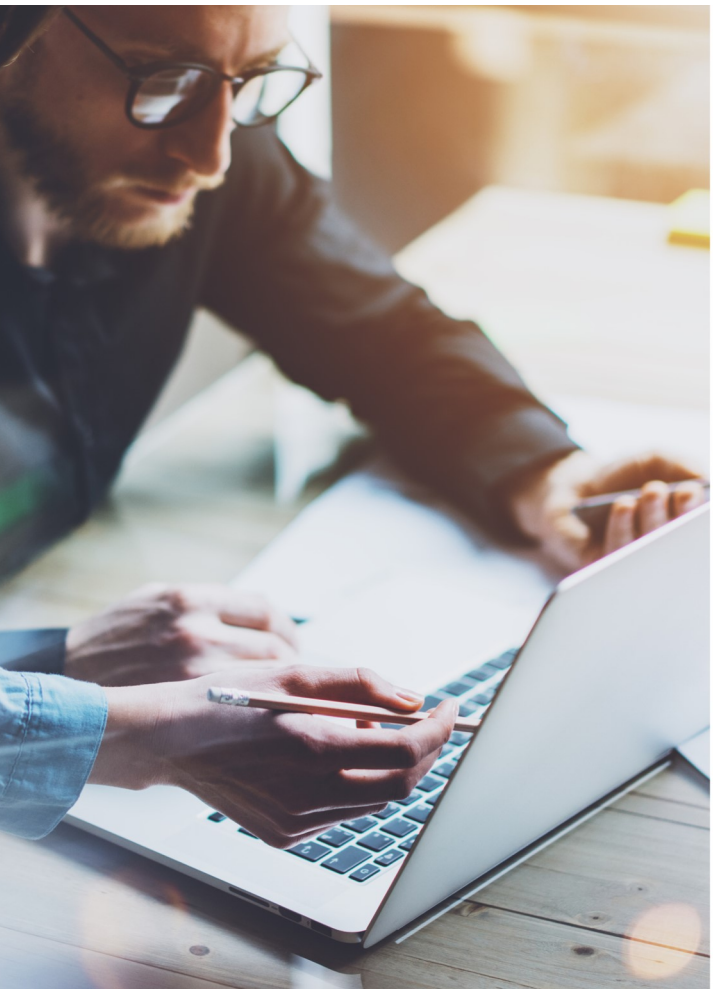
INNOVATION IN THE ENERGY TRANSITION

FOSTERING BUSINESS COMPETITIVENESS

REPORT



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FUNDS NEEDED TO BOOST INNOVATIVE ENERGY

European clean energy start-ups are brimming with new ideas, but they could use help to get products to market faster, panellists told a Friends of Europe Café Crossfire debate on 20 June.

The theme is especially urgent after US President Donald Trump's decision to pull out of the Paris agreement, provoking fears of a reduction in America's contribution to clean energy innovation. In reaction, other parts of the world appear willing to fill the void. The European Union and China renewed their commitments to further foster the clean energy revolution at this year's Mission Innovation and Clean Energy Ministerial meetings in Beijing. That high-level political will could drive ambitious, real-world clean energy policies and actions.

TIME FOR ENGAGEMENT WITH THE PRIVATE SECTOR

Private companies will be major drivers of the low-carbon future. Advances that can help bring down barriers to the successful and sustainable deployment of renewables include major technological innovations, new business strategies, changes in social behaviour and new options for energy storage. To accelerate this, the private sector will need a business environment in which they can forge ahead, meaning active support from government.

"Engagement with the private sector is going to be important," said **Patrick Child**, European Commission Deputy Director-General for Research and Innovation and Chair of the Mission Innovation Steering Committee. "Increasingly, the European Union will be expected to continue to take a global lead in the debate on climate change."

POLITICAL RESOLVE

There were fears that the Beijing meeting would be gloomy because of President Trump's announcement, but that wasn't the case. "How do we feel about the Trump announcement?" asked Child. "We are all disappointed. But the message we heard was that countries remained fully committed to objectives of Paris. We don't yet know what the technologies are that will help us meet the targets in the Paris agreement, but our political resolve is strong."

Financing will be crucial to achieve the Paris target of reducing global warming below 2°C. "Time is urgent and the ability to get there is riddled with complexity," said moderator **Dharmendra Kanani**, Director of Strategy at Friends of Europe. "We need money to get there."

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Some of the brightest news comes from the advances made by industry, which is developing a range of mutually reinforcing technologies. These include digital sensors, which will help manage energy demand more efficiently; electric cars, which are now becoming popular in a few markets; green hydrogen for transporting energy over a long distance; and renewable electricity generation.

“Imagine a street in New York in 1900, full of horse carriages,” said **Caroline Hillegeer**, Senior Vice-President of Strategy and Technology Watch at Engie. “They had a huge environmental problem – which was horse manure. But by 1913, the same street was full of cars driven by internal combustion engines. So, in 13 years there was a huge transformation. It’s possible. It goes very fast and that’s what we are experiencing now in the energy sector. It is not tomorrow; it’s today. It has already started.”

THE CHALLENGE OF STORAGE

One important theme is energy storage. This can help renewables get over their dependency on the weather, as they can only produce electricity when the sun is shining or the wind is blowing. So they need a means to store energy that can be used when the conditions for generation are not right.

The European Commission’s November 2016 package ‘Clean Energy for All Europeans’ – known as the ‘Winter Package’ – contained proposals to promote the integration of electricity produced from renewable sources into the market. “We are hoping to be able to consolidate a clear European lead in the next generation of renewables and electro mobility,” said Child. “I am hugely optimistic. There are huge commercial opportunities of investing in clean technology.”

French start-up Sylfen is developing a solution to store energy using hydrogen. Its Smart Energy Hub is designed to give buildings and districts a means to store more energy than batteries, at a lower cost. Unlike an internet start-up, the system needs hardware too, which costs money. That makes financing a bottleneck, as most start-ups need to survive for a number of years while they develop commercially viable products.

“We don’t bring a technology into a market, we transform a technology into a product,” said **Caroline Rozain**, Sylfen’s Co-Founder. “The first challenge a start-up needs to overcome is to be resilient. There are ups and downs, so you have to keep moving going forward no matter what happens.”

MORE FINANCING TOOLS NEEDED

Though financing tools exist for start-ups, they are mainly national. “We met with funds in Germany and Finland, but they wanted us to set up operations in those countries,” Rozain said. “So I would like to ask the European Commission to focus on seed funds at a European level.”

One idea is to support venture capital. In November 2016 the European Commission and the European Investment Fund (EIF) invited applications to set up pan-European venture capital funds of funds. Announcing the plan, Carlos Moedas, the Commissioner for Research, Science and Innovation, said that Europe has relatively little venture capital in Europe compared with the US, and pointed to European funds’ lack of the scale and geographic scope to grow companies from an early stage until they

become global players. The aim of the funds is to provide venture capital beyond the few member states where they are largely concentrated at present.

“Finding effective ways to get the public and private sector to work together in clean energy is vital,” said Child. “There is no shortage of capital in Europe but there is less appetite for risk to finance start-ups. We have got a range of instruments at different stages, and we have got to make them more user-friendly.”

Moedas also set up a high-level group of 15 innovators to advise the Commission on how to strengthen support for innovation in research programmes, something that could lead to a European Innovation Council. “This is a new idea to take on more of the risk using public funds,” said Child. “It will expose us to risk and we will have to defend this.”

BIG ENERGY INVESTMENTS MULTIPLY

Engie is broadening its clean-energy activities by investing further upstream. One example is its partnership with Solar Impulse, the Swiss solar-powered aircraft project, which completed the first solar flight round the world. “At first, the focus was on very mature start-ups, because we want to get technologies to market,” said Hillegeer. “But now we believe in some technologies and want to make them happen. So we are engaging with more resources so that we can share the risk.”

An important area for Engie is the application of digital technology to energy. In 2016 it set up Digital Factory, which will support the digital transformation of operations. It will develop applications on a large scale in order to offer new products and services to residential, business and industrial customers, ranging from smart cities to the predictive maintenance of industrial facilities. “Technology has always been at the core of energy,” said Hillegeer. “But change is accelerating every day.”

One of the strongest drivers of clean energy will be the combination of new generation and storage methods, with advances in consumer products such as electric cars. For this reason, Engie bought charging station maker EV-Box, which has deployed more than 40,000 charging stations in 20 countries. Ubiquitous charging stations are an essential factor in spready electro-mobility, as many potential customers worry about battery range and the prospect of being left without power. “Linking them together and looking at the size of the system is key,” said Hillegeer. “Then we will be closer to getting the end-user to change habits. It can happen very quickly.”

CONCLUSION

The clean energy revolution needs products to come to market. However, it is not always easy for start-ups to finance the commercialisation of ideas and technology. Big energy companies are increasingly investing in technology ventures, but some start-ups will need seed capital. To boost the amount of funding available, the European Commission is convening venture capitalists to try to funnel investment to where it is needed.

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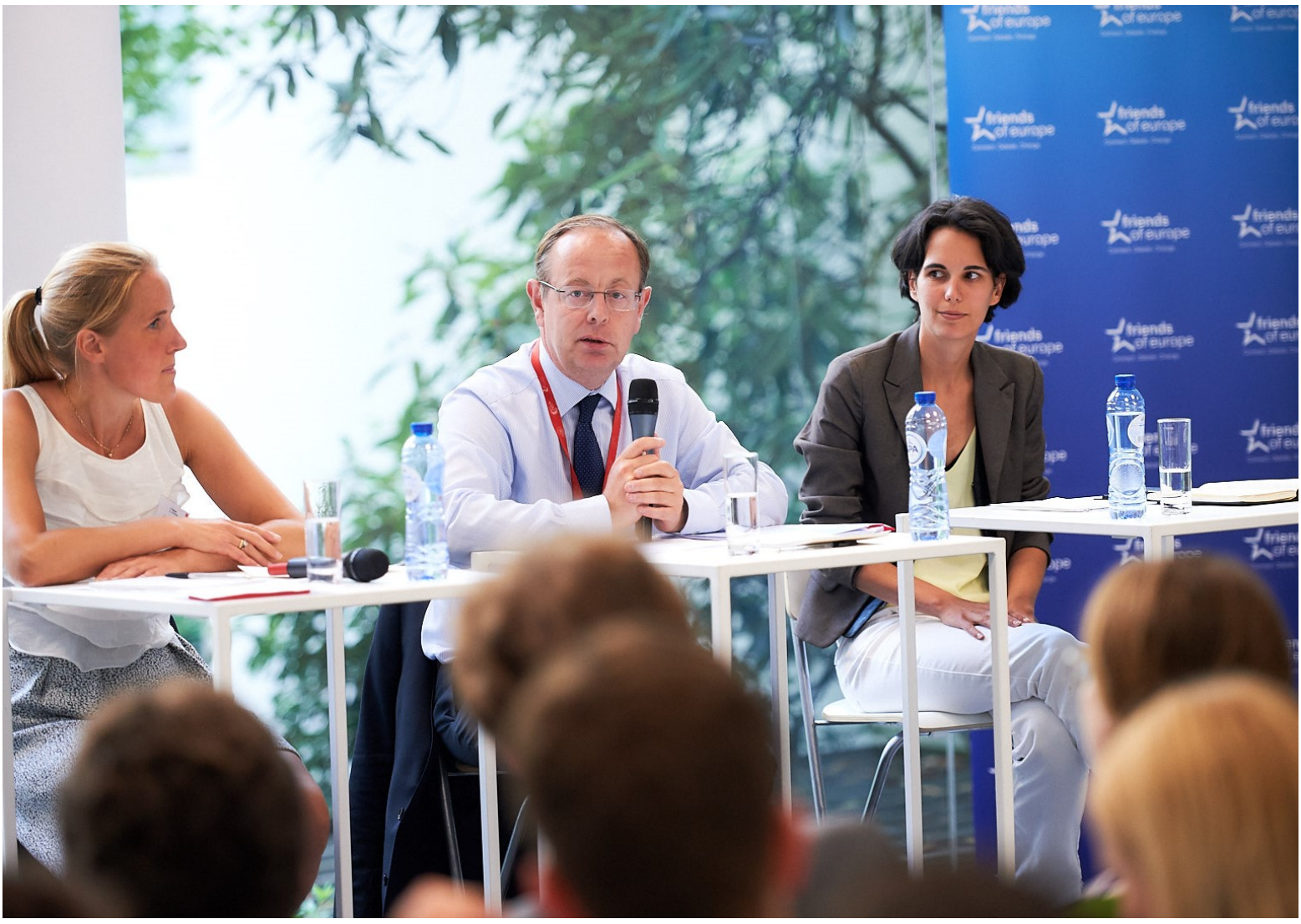

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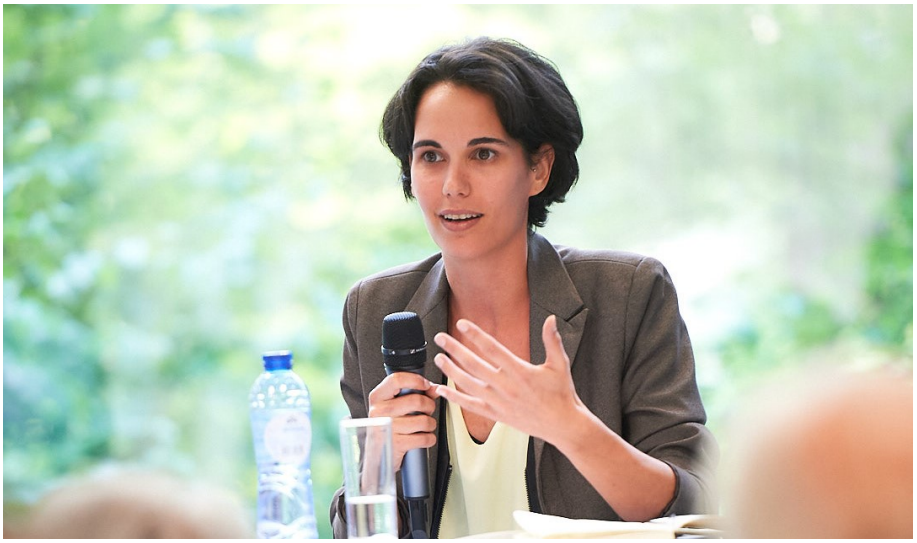

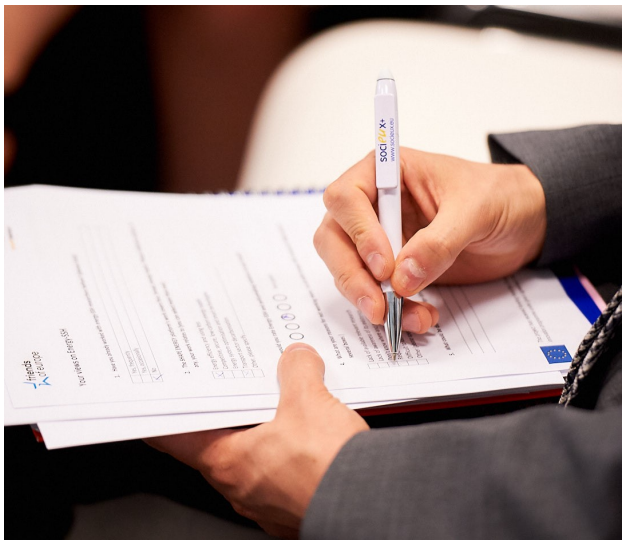

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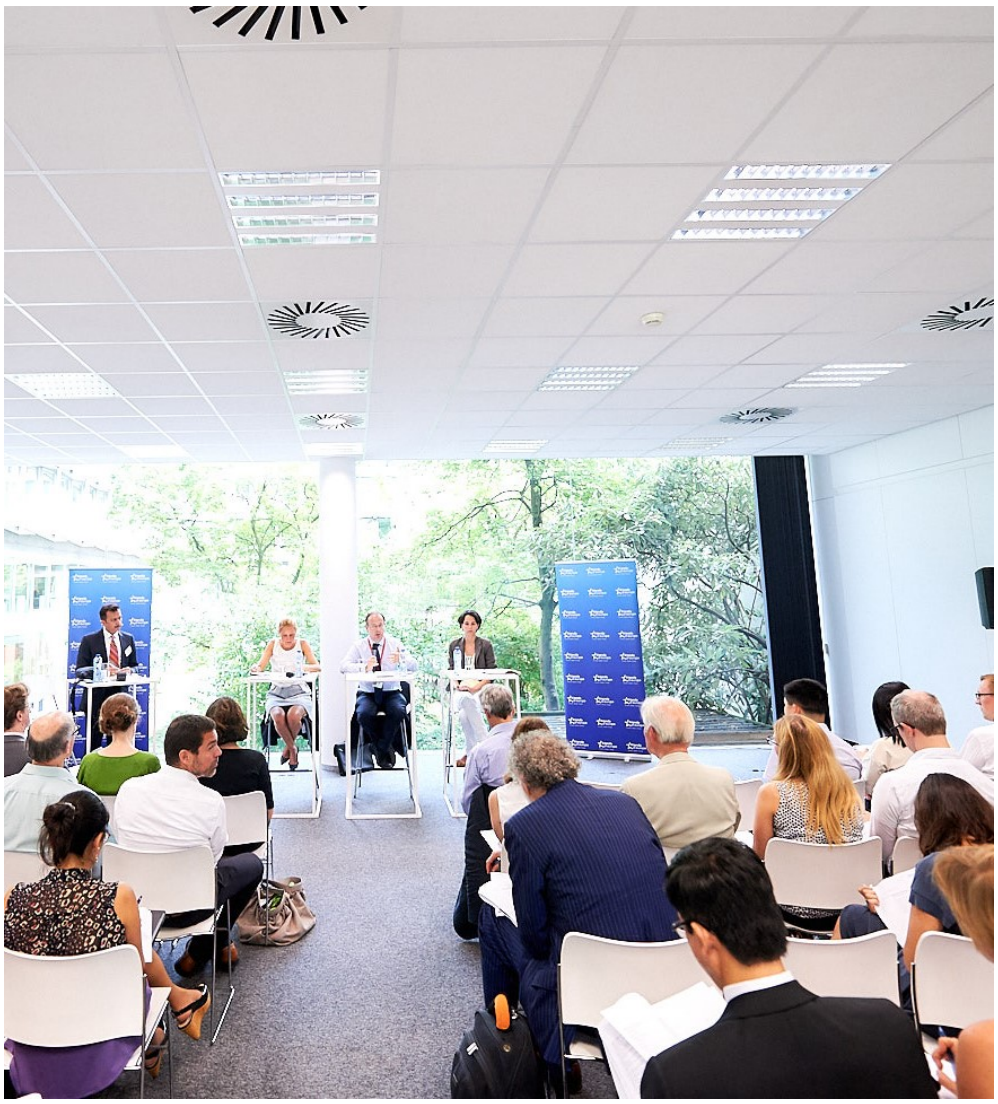

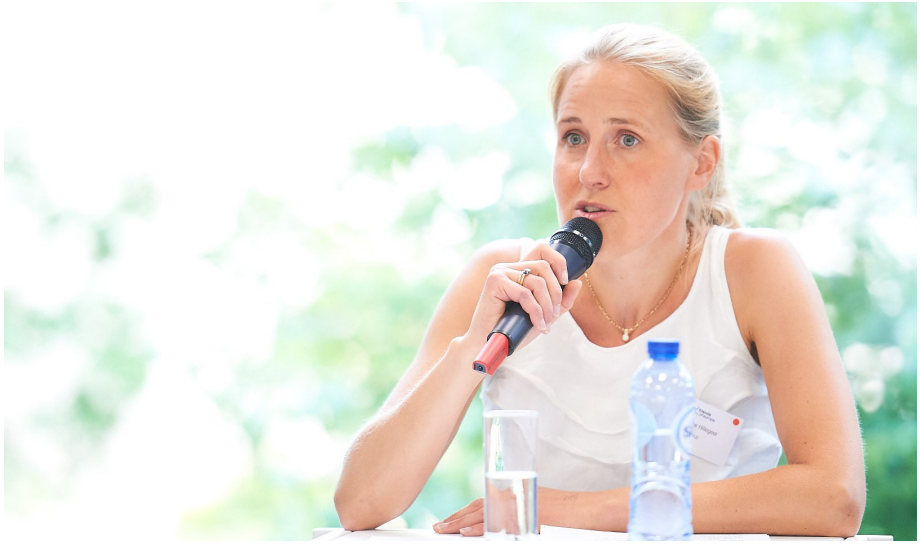

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