

## “Take aim, press print.”

Energetics experts are essential for defence and security; from forensic analysis to the protection of troops from explosive devices. Since recognising this national decline in the energetics sector, the MOD has since invested nearly £10 million, to combat the issue by establishing the Future Energetics Project in 2015. Subsequently, the Future Energetics Project has significantly invested in both people, technologies and equipment to develop this UK capability.

The Future Energetics Project has adopted an innovative research path, manned by early-career scientists and engineers, to explore the next ‘big things’ in energetics technologies. Graduates, Apprentices and more experienced staff on the project are heavily involved in research, explosives trials, novel energetics manufacture, blast modelling, chemical synthesis, thermal characterisation and small-scale hazard testing. This work has a direct impact on how the UK tackles ongoing threats, whilst rapidly building up experience in people for the future.

The Future Energetics Project has a number of aims including the development of new energetic materials, diagnostic methods to validate new materials and processing tasks with the benefit of sustaining the capability for the next generation. One of the most exciting developments is applying additive manufacturing – or 3D printing – to new explosive formulations.

3D printing explosives offers numerous benefits for potential users, including reducing storage and transport costs, and enhanced performance with reproducibility. Charges can be printed on demand, bespoke to requirements, in novel and intricate designs previously impossible to manufacture.

The energetic formulations for 3D printing are manufactured in a LabRAM resonant acoustic mixer, which uses acoustic energy rather than physical blades to mix materials, making it safer and more efficient to use. Many organisations are looking at different stages of 3D printing, but Dstl is the only place in the UK that is working on an end-to-end process of this kind with high explosives.

The 3D printing project is currently in testing stages, mainly focusing printer capabilities and material extrusion to then move on to examining explosive characteristics of a print including utilising charge geometry to create different explosive effects. Understanding what shape has what effect could lead to bespoke printing for individual missions in a warzone, providing an amplification of an effect with less material. As 3D printers give limitless possibilities, this is a real breakaway from traditional explosives.

A spokesperson from Dstl said:

“Without investment, the UK capability would die,”

“It’s up to MOD to make sure that doesn’t happen, as industry has limited or no capability in many critical areas.”

The funding – which has since grown, following early successes – has led to innovative research and has put the UK on track to ensure there are enough suitably qualified and experienced personnel across all areas.

The spokesperson said:

“Energetics knowledge and experience is vital for the UK to develop the best equipment, platforms and operational assets. We need to know how energetic systems damage or defeat our platforms and how we can counter threats, so we can advise on things like countermeasures, detection, safety, transportation and disposal, all while working with explosives in accordance with legislation.

“Having this capability also means we can rigorously test and evaluate vehicles and systems against current and emerging threats to ensure they offer the required protection for armed forces. We also need to be able to support the police and counter-terrorism units who deal with explosions and homemade devices, such as the Manchester bombing in 2017.”

The Future Energetics Project has attracted people from a range of backgrounds such as forensic science, mathematics, chemistry, physics, graphic design, engineering and astrophysics. The need to improve UK energetics capability has been recognised by a number of national and international partners, and many activities are now available to develop skills.

Dstl played a critical role in establishing both the Centre of Excellence in Energetic Materials (CoEEM), a virtual centre based at Cranfield University which co-ordinates research and training; and the Sector Skills Strategy Group (SSSG) within the Institute of Explosives Engineers, which provides strategic direction to sustain explosives skills.

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## **PM statement on Commonwealth Day: 9 March 2020**

Today, on Commonwealth Day, I’m pleased to be celebrating one of the world’s greatest families of nations – the Commonwealth. An alliance of 54 countries spanning the globe and creating an enduring bond between our people.

The Commonwealth has over 70 years of history as a driver for peace, democracy and human rights around the world. It gives a voice to its member states and the 2.4 billion Commonwealth citizens around the world.

Over 60% of those citizens are under 30 years old and it is for them in particular we must look, not just to the past successes of the Commonwealth, but to its future. With the world facing increasingly difficult challenges from climate change to global health security, we need the cooperation and understanding that the Commonwealth brings more than ever.

I am extremely proud that the UK, as the current Chair-in-Office, is at the heart of this unique global family.

Since hosting the Commonwealth Heads of Government Meeting in London in 2018, the UK has invested in promoting prosperity, sustainability, fairness and security throughout the Commonwealth.

And as we pass the baton onto Rwanda later this year, the UK remains committed to the Commonwealth as a force for good in the 21st century.

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## [£1 billion deal to end poor rural mobile coverage agreed](#)

Today [09/03/2020] Ministers and bosses from mobile network operators will meet to sign a £1 billion deal to make poor and patchy rural phone coverage a thing of the past.

The world-first deal will be a huge boost for people across the country in rural areas and will deliver strong 4G coverage irrespective of what network provider people use.

The ambition is to make sure everyone can benefit from fast services on the go – from those running small businesses to people shopping or booking travel online to speaking to friends and family. It will spur economic growth and close the digital divide across the country through better connectivity.

The Shared Rural Network (SRN) is a deal with EE, O2, Three and Vodafone investing in a network of new and existing phone masts, overseen by a jointly owned company called Digital Mobile Spectrum Limited, they would all share.

It will provide guaranteed coverage to 280,000 premises and 16,000km of roads. We can also expect some further indirect improvements over time, including a boost to 'in car' coverage on around 45,000 km of road and better indoor coverage in around 1.2m business premises and homes.

The deal will lead to increases in coverage in some areas by more than a third, with the biggest coverage improvements in rural parts of Scotland, Northern Ireland and Wales.

Coverage in Scotland, where there are unique geographical and landscape challenges and sparsely populated areas, will rise from 80% to 91% from at least one operator and from 42% to 74% from all four operators.

It means all four mobile network operators will deliver 95% combined coverage across the whole of the UK by the end of 2025 and consumers can rely on their own provider's network wherever they are.

It follows moves by the government to improve digital infrastructure by making it easier and cheaper for the private sector to deploy faster broadband to the most commercial areas of the country, new legislation to make it easier for telecoms firms to connect blocks of flats, and plans to mandate gigabit-capable connectivity in new build premises.

The government has also pledged £5 billion to subsidise the roll out of gigabit capable broadband in the harder-to-reach areas of the country.

Scotland Secretary Alister Jack said:

This joint UK Government and industry investment of £1 billion is great news especially for those living in rural areas of Scotland who will be able to get the fast and reliable 4G mobile coverage they need and deserve.

Better mobile connectivity is vital for our daily lives – making flexible working, booking travel, shopping online and communicating with friends and family easier.

We are closing the digital divide, uniting and levelling up our country with superb infrastructure in every corner of the United Kingdom, boosting economic growth.

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# Foreign Secretary marks Commonwealth Day 2020

The Foreign Secretary and British High Commissions across the world will mark Commonwealth Day today as leaders gather in London for the annual commemorative service at Westminster Abbey, attended by Her Majesty The Queen.

The new British High Commission in Samoa will hold the UK's earliest and easternmost Commonwealth Day celebration, while a workshop for female fashion entrepreneurs will take place in Sierra Leone, and a youth Commonwealth Heads of Government Meeting will be held in India, with university students having their say on climate change.

Foreign Secretary Dominic Raab said:

As an institution uniting 2.4 billion people across 54 countries, the Commonwealth is unique in the diversity of its partnerships, spanning six continents and making up a fifth of all global trade.

We are tackling some of the largest global challenges through the Commonwealth, from combatting climate change to preventing cyber-crime, and creating a brighter future for the next generation.

As the current Chair-in-Office, the UK is at the heart of the organisation, which spans across six continents, represents a third of the World Trade Organisation, and a quarter of the G20.

World leaders agreed at CHOGM 2018, which was held in London, to be a global force for good in tackling the major challenges of this century – from reducing plastics in the ocean, and ensuring 12 years of quality education for all children, to increasing trade within the Commonwealth.

Following that agreement, 31 member states have joined the UK and Vanuatu-led Commonwealth Clean Oceans Alliance, more than 8 million people will have been reached by antibiotic distribution by CHOGM 2020, and we are on track to increase trade between Commonwealth nations to more than £1.5 trillion by 2030.

ENDS

## **NOTES TO EDITORS**

- The Commonwealth is comprised of 54 member nations after its most recent member, the Maldives, re-joined last month.
- Rwanda is due to hold CHOGM 2020 in Kigali in June.

- For the past 70 years, the Commonwealth has had a lasting impact on the promotion of peace, democracy and human rights, and we remain united as we face some of our biggest challenges yet.

## **Further information**