



Advanced Fuel Cycle Programme

Fuelling Net Zero by supporting innovation across the UK supply chain

Through our supply chain network, AFCP is elevating UK nuclear capacity and empowering industry to deliver innovation. Together, we are enabling opportunity that will underpin Britain's sustainable energy landscape.

Working with more than

90 UK ORGANISATIONS

Of AFCP supply chain investment in UK industry, over

60% SUPPORTS SMEs

Leveraging over

£130 MILLION

on public investment in AFCP so far

**Supporting
the UK
Industrial
Strategy**

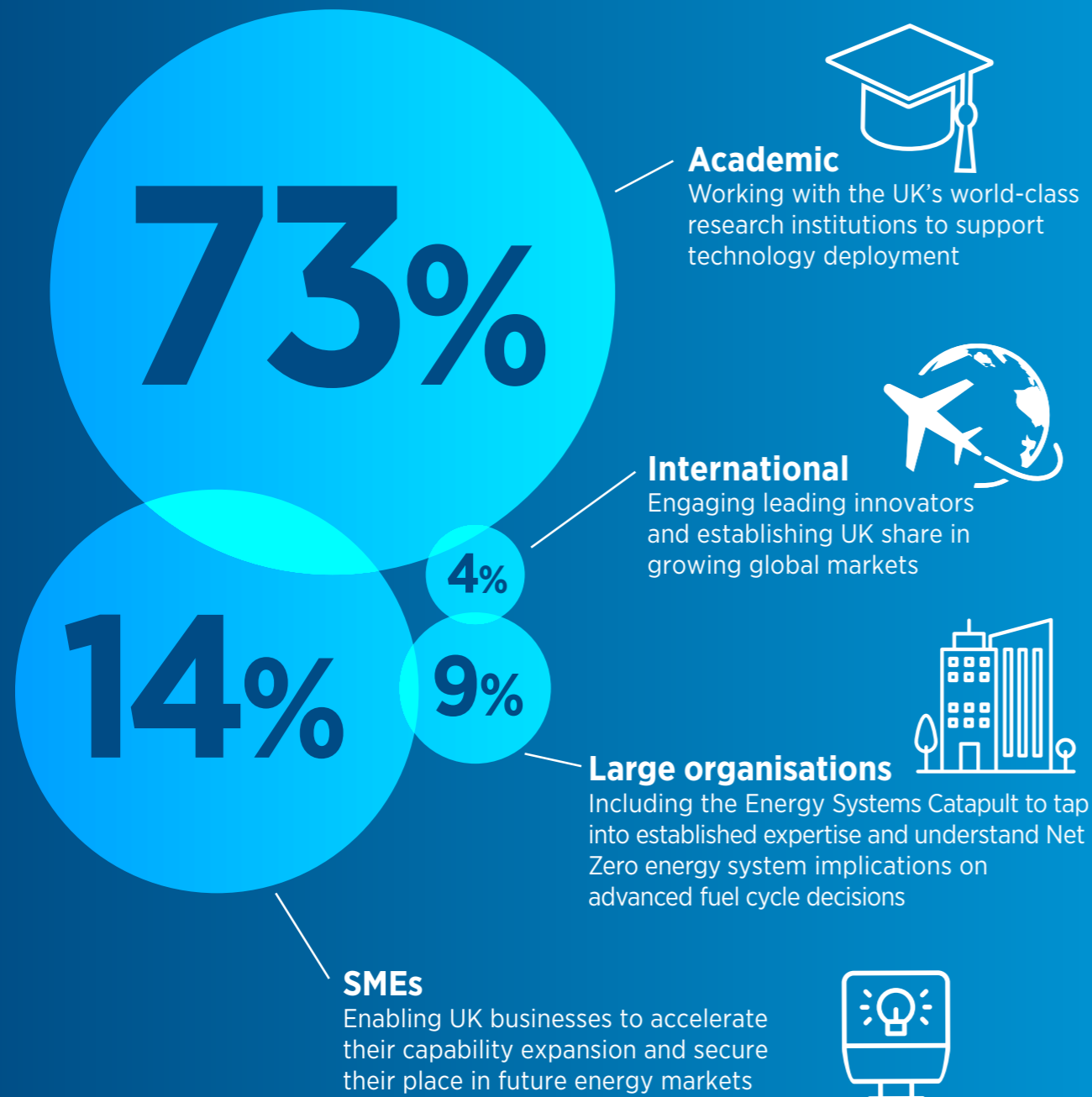
**Positioning UK
organisations to
access future
clean energy
markets**

**Leveraging
public investment
in innovation
to ensure value for
public money**

Backing UK business to advance clean energy innovation

AFCP unites organisations across the nuclear sector and beyond to confidently position the UK for future clean energy markets

As a percentage of AFCP's £12.9m investment in the supply chain



For more stories about AFCP's industrial impact, visit:
<https://afcp.nnl.co.uk/casestudy-category/supply-chain-and-economy/>

Securing SME space in future markets

Teer Coatings Ltd Droitwich

“ AFCP has advanced our design and manufacture capability, allowing us to supply and sell novel machines into new and future markets. ”

Teer Coatings has been heavily involved in UK R&D over the last 10 years, with many projects linked to Net Zero. However, as a small company, the transition from R&D to production has remained a challenge due to the risks associated with the scale-up of technology.

AFCP has enabled us to build our manufacturing capability in ways we otherwise wouldn't have been able to achieve. Through major investment and collaboration across AFCP's network – including our work for international organisations such as Westinghouse – we have been able to develop novel coated fuel cladding techniques that support the UK's clean energy transition, increase safety margins and have excellent export potential.

The experience we gained from the design challenges posed through AFCP has allowed us to re-think our current design, leading to new concepts and capability within the organisation. Being able to offer our new scale of magnetron sputtering machine is not only a first for us – but for any organisation in the UK.

This new approach will better equip us for building a wider range of machines in the future. In doing so, AFCP has enabled us to open up new, future markets that will strengthen our growth as a company while supporting UK clean energy innovation goals.

Hear Teer Coatings Ltd's story:

<https://afcp.nnl.co.uk/case-study/securing-sme-space-in-future-markets/>

Informing UK development through trusted expertise

Jacobs Knutsford

“ Through AFCP, we are able to look forward and help shape the next generation of innovative solutions and ways of working. ”

Jacobs is committed to making a positive environmental, societal and economic difference for businesses, governments and communities. To do that, we need to attract and retain the best talent across diverse skills and disciplines, including those with expertise in clean energy technologies. AFCP has not only secured a route for employee training and development opportunities, but has allowed us to support a range of organisations across the programme's clean energy network.

Through AFCP, we apply Independent Nuclear Assurance expertise to new technology to understand likely regulatory gaps. We then lend preliminary advice to reactor design organisations.

Additionally, AFCP enables us to apply our existing capabilities and facilities to a new technology area. To date, the programme has enabled us to advance our capability developed on existing fuel cladding to further developments and technology evolution.

Beyond our direct involvement in AFCP, visibility of the wider programme has raised awareness of the capabilities of other organisations complementary to our own. Together, we are pushing the limits of what's possible and creating new standards for a sustainable future as we take action on climate.

Hear Jacobs' story:

<https://afcp.nnl.co.uk/case-study/informing-uk-development-through-trusted-expertise>

Supporting innovative nuclear newcomers

Lucideon Ltd Stoke-on-Trent

“ Lucideon is not a traditional nuclear supplier, so we bring new ways of thinking to nuclear sector challenges. ”

Through partnership with NNL, AFCP helps Lucideon demonstrate, promote and secure our place in the UK nuclear sector. In advancing our ability to deliver high-value research and solutions, AFCP positions Lucideon to support existing efforts by other organisations and universities. This is an opportunity to develop novel, scalable solutions that will enable fuel manufacture in the UK.

Lucideon has pioneered the development of flash sintering technology in a number of sectors. However, AFCP has enabled the first ever application of flash sintering to nuclear fuels. AFCP allows Lucideon to further scale up flash sintering within a specialist manufacturing environment. In doing so, we can sustain high value jobs and enhance our ability to cross-fertilise technology between sectors.

AFCP utilises a wide range of scientists and engineers with experience in multiple market sectors. The programme's collaborative approach allow us to form new partnerships, thereby accessing a range of opportunities and knowledge. AFCP is our stepping stone to further explore other technology applications within the nuclear sector.

Hear Lucideon's story:

<https://afcp.nnl.co.uk/case-study/supporting-innovative-nuclear-newcomers/>

Reviving sustainable solutions for long-term success

GeoRoc International Ltd Whitehaven

“ The role nuclear will play in the achievement of Net Zero will determine the market for next-generation technologies. As such, Net Zero is an opportunity for our business. ”

Through AFCP, GeoRoc International (GRI) Ltd is reviving and updating a processing methodology to safely manage the waste produced from nuclear power generation. This not only improves long-term environmental safety, but allays concerns for the next generation of reactor operations. We understand the challenge around securing public trust and confidence, and are committed to delivering sustainable solutions that enable the UK to achieve its Net Zero objectives.

Despite their widely acknowledged benefits, these technologies have yet to be commercially deployed. Through AFCP collaboration, our work supports the future uptake of improved waste treatment technologies, both in the UK and internationally.

The market for such technologies will not exist until both technological and commercial viability has been demonstrated, so programmes such as AFCP – which support developmental efforts – are fundamental. AFCP is increasing the likelihood of further nuclear power implementation, enabling the creation new target markets and advancing the global adaptation of improved, environmentally-sound solutions for radioactive waste management.

Hear GeoRoc International's story:

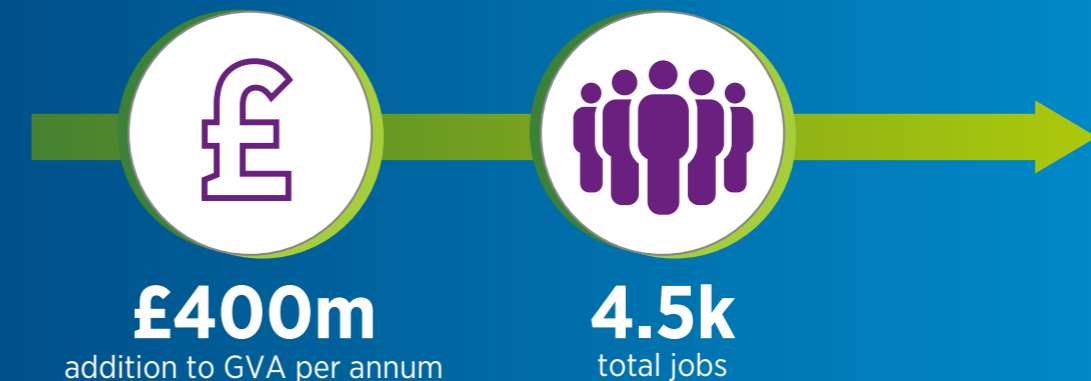
<https://afcp.nnl.co.uk/case-study/reviving-sustainable-solutions-for-long-term-success/>

Investing in innovation that will enhance exports, create jobs and drive down the cost of clean energy

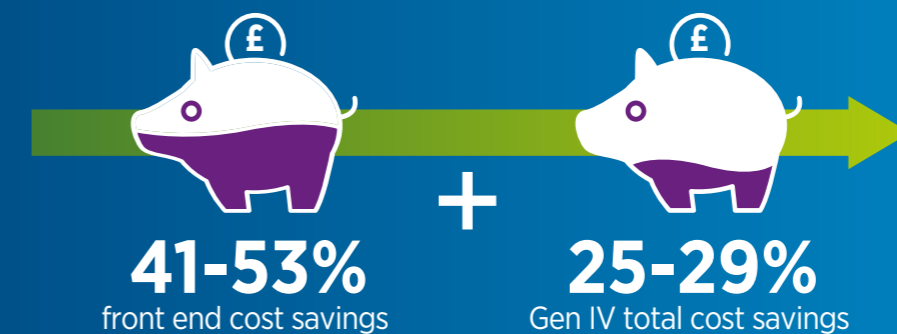
By 2050



UK potential value for advanced fuels*



Growth in front end of fuel cycle exports**



Investment in advanced fuel innovation contribution to Generation IV cost savings*

*Technology Innovation Needs Assessment (TINA), 2016

**Energy Innovation Needs Assessment (EINA), 2019

ADVANCED FUEL CYCLE PROGRAMME

Advanced fuels

Pioneering UK-made, globally-deployed next generation nuclear fuels to combat climate change

Advanced recycling and sustainability

Reusing valuable resources to increase sustainability and minimise the environmental footprint of nuclear energy

**Delivered by
over 90 UK
organisations**

Securing, maintaining and renewing the skills and experience needed to ensure that nuclear can continue to play a part in delivering secure, low-carbon energy in the global market and Net Zero future.

