



## Advanced Fuel Cycle Programme

### Fuelling Net Zero by working with world-leading UK universities

Through providing research opportunity and skill development across academia, we are supporting the next generation of innovation and people that will secure a clean energy future.

Bridging expertise across

**16 UK UNIVERSITIES**

Supporting

**95 PHDs AND POSTDOCS**

to train the next generation of clean energy thinking

More than

**£10.3 MILLION INVESTMENT**

in UK academic institutions

**Driving critical  
research to support  
Net Zero**

**Unifying  
innovation from  
academia through  
to industry**

**Creating  
valuable  
development  
opportunities**

# Supporting the next generation innovators behind the next generation fuel cycle

## R&D with lasting impact

### Power to achieve Net Zero

“ The development of enhanced advanced technology fuels and claddings will not only improve operational reliability, economics and safety, but will also **drastically reduce carbon emissions.** ”

Gideon Obasi, PDRA,  
University of Manchester

### Providing safe solutions

“ Nuclear is the only reliable low-carbon technology that can provide safe and secure electricity. Increasing nuclear safety through advanced technology fuels is excellent for **increasing public confidence.** ”

Adele Evans, PDRA,  
Manchester Metropolitan University

### Reducing cost, increasing sustainability

“ Improving separation chemistry will help reduce the footprint of reprocessing plants, in turn **reducing costs and energy consumption.** This will also reduce the amount of waste for disposal and the uranium/plutonium can be more easily reused. ”

Kathryn George, PDRA,  
University of Manchester



## Building UK capability with global influence



### Leading with ambition

“ The **AFCP projects are ambitious and world-leading**, so it is great to see the UK innovating in this space and pushing some speculative research which could have large rewards. ”

Alex Leide, PDRA,  
University of Bristol

### World-class research, world-recognised results

“ Developing nuclear fuels of the future and fuel recycling technologies will **propel the UK to the world-leading stage**, support and strengthen the UK nuclear supply chain and establish UK leadership in the international co-operation for these technologies. ”

Ghebrehiwot Berhane, PDRA,  
Lancaster University

### Driving the UK economy

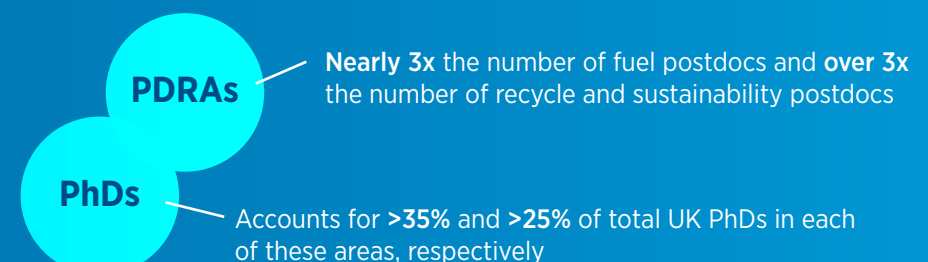
“ Success in our proposed research will likely have **long-lived economic benefits for the UK**, opening up opportunities to exploit the UK's expertise in nuclear fuel manufacturing. This would positively impact the UK economy, generating new manufacturing jobs and export/licensing opportunities. ”

James Wade-Zhu, Co-Investigator/PDRA,  
Birmingham University

## Addressing knowledge gaps

By investing in a new university opportunities, AFCP is reversing recent UK trends. Compared to the entire combined nuclear sector in 2018/19, AFCP alone:\*

\*NIRAB has reported a low total number of staff, PhDs and postdoctoral researchers working on fuel fabrication, used fuel handling and advanced reactors. The UK Civil Nuclear R&D Landscape Survey, March 2020, NIRAB.



# Launching the next passionate leaders



## Envisioning an enthusiastic future

“ As a young academic with much to learn, there is no better group to be a part of. We are making nuclear promise a reality. We are part of a new nuclear generation that is **more open, modern and connected to the people we serve.** ”

Simon Middleburgh, Senior Academic,  
Bangor University

## Sustaining a range of talent

“ AFCP’s foundation is **small, diverse and dedicated.** Small in that AFCP features a significant source of funding for these research areas, playing a key role in ensuring their sustainability. Diverse in that compared to the industry norm, my team comes from wide-ranging backgrounds and represents a more inclusive future of research. Dedicated in that, even whilst holding job offers from other positions, researchers prefer to work on AFCP. ”

Colin Boxall, Senior Academic,  
Lancaster University



My experience with this generation of innovation is that the nuclear renaissance is coming.

Sarah Pepper  
University of Leeds, PDRA



AFCP and the BEIS Energy Innovation Programme have been my most enjoyable and rewarding research projects to date.

Michael Bromley  
Lancaster University, PDRA



There is power in bringing together an interdisciplinary group of motivated people to share ideas and arrive at innovative solutions - which AFCP does.

Rob Worth,  
University of Manchester, PDRA

# Providing valuable career connections



## Collaborating with top talent

“ Through AFCP, I have been **brought into contact with leading experts** who are as welcoming as they are knowledgeable and insightful. ”

Alastair Baker, PDRA,  
University of Leeds

## Developing key skills

“ AFCP has supported me in developing my research expertise and, in taking part in an interdisciplinary R&D project, I also have the opportunity to expand my **technical knowledge and interpersonal skills.** ”

Marialuisa Gentile, PDRA,  
University of Manchester

## Tackling global problems

“ AFCP has supported my development as an early career researcher, giving me the opportunity to participate in a wide range of projects **both national and international.** The researchers within AFCP are keen, passionate and full of new ideas for the future. We see it as an opportunity to cement the UK’s research capabilities as world-leading and are excited at the opportunity to contribute to the future energy security of the country. ”

Toby Wright, PDRA,  
University of Manchester

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.

