**Theme 1 : Energy and Sustainability**

New interdisciplinary approaches are urgently needed to prevent the anticipated national and global energy crisis. The University of Manchester is finding solutions to some of the biggest energy challenges we face, from the sustainability of sources to the social factors around inequalities in access to power. The generation of nuclear power is on the increase and is set to double by 2035 in order to meet the global demand for low-carbon energy. One of today’s greatest challenges is to identify and produce secure, affordable and low-carbon energy supply for the future, while also managing the risk and impact of climate change.

Manchester is also at the forefront of the bio-industrial revolution, and our pioneering work into next-generation chemicals for industrial needs is changing how we produce vital materials and have the potential to provide sources of renewable energy.

Strong topics under this theme would include: new technologies to maximise efficient and low carbon energy extraction; smarter engineering to minimise energy wastage; innovative strategies straddling technology and social sciences to encourage low-energy behaviours; techniques to produce reliable, sustainable and smarter chemicals and biofuels.

Projects which might be of particular interest include: Nuclear Science; Bioenergy and Biofuel Research; Energy Demand Management; Climate Change Policy; Energy in Cities

This theme is incorporated within the **Energy** and **Industrial Biotechnology** Research Beacons.

**Theme 2 : Graphene & Enterprise**

Throughout our history, the University has been a hotbed of technological innovation and brilliant original thinking. The encouragement of Enterprise – both through new business development and innovation within organisations - will be vital as a future economic driver for the national and global economy. As the University continues to commercialise the application of Graphene, research in this area would be of particular interest for future Research Impact Scholarship nominations.

The formative years spent at University present an ideal opportunity to support and inspire some of the brightest young thinkers and dynamic new business leaders of the future. The potential is especially strong at learning centres which are home to nationally-leading science and technology, where students are surrounded by successful, entrepreneurial academics and benefit from an environment which has supported a wide range of successful start-up companies, with outstanding business incubator facilities.

Examples of areas of excellence within this theme include: Graphene at the National Graphene Institute; Commercialisation and Entrepreneurship at the Alliance Manchester Business School and beyond; work at the Manchester Institute of Innovation Research (MIoIR).

This theme is incorporated within the **Advanced Materials** Research Beacon.

**Theme 3 : Global Inequalities**

As the world considers progress against the Sustainable Development Goals (put in place September 2015), Manchester is at the forefront in influencing international governmental policies, along with supporting local communities to tackle poverty, and improving emergency response when natural disasters strike.

As the head of global consortium of research and policy experts, we’re pioneering new, more effective anti-poverty strategies, and working with governments to implement them. At the same time we are becoming the UK’s leading specialists in international humanitarian rescue missions. The challenge is to implement progress against poverty in Africa and spread best practice to other nations struggling with poverty. New approaches are urgently needed to improve preparedness for disasters and to better plan and implement the international community’s medical and humanitarian response when they strike.

The Division are keen to show projects within this theme that are part of the Global Development Institute (GDI) and the Humanitarian and Conflict Response Institute (HCRI).

This theme is incorporated within the **Addressing Global Inequalities** Research Beacon.

**Theme 4 : Healthy Futures**

Thanks to breakthroughs in medical science, the possibility of preventing disease is within our sights. The University of Manchester is delivering a comprehensive research programme to bring about change *before* people get ill, to make lasting impact for people in Manchester, the UK and across the world.

As a result of advances in research, we now know a vast amount about diseases, our bodies and our genes. There has been a huge investment in developing new drugs and surgical methods to save lives. Prevention and screening research has the opportunity to find solutions to major health problems before people become seriously ill and before lives are lost unnecessarily.

Research areas which might be of particular interest include: Heart Disease; Maternal and Neonatal Health; Cancer; Behavioural Change; Understanding Disease.

This theme is incorporated within the **Cancer** Research Beacon.

**Theme 5 : Discovery**

Much of our research is focused on achieving clear-cut objectives, often within specific time frames. But, like any great university, we’re also excited and engaged by the bigger challenge of pushing back the boundaries of human knowledge. We want to allow the curiosity of our world-class minds to roam freely, in search of discoveries that could unlock great benefit to society.

Projects for this theme aim to support research into areas of exploration, such as the hidden ideas and knowledge within our Special Collections, blue sky biology to understand the mechanisms that govern human life, or improving our knowledge of the dark universe.

The theme is incorporated within **any of the Research Beacons**, dependent on the specific project.