

Engineering and Physical Sciences Research Council



# **ANNUAL REPORT AND ACCOUNTS 2016-17**



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Technology Act 1965

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Any enquiries regarding this publication should be sent to us at:

EPSRC  
Polaris House  
North Star Avenue  
Swindon SN2 1FL

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# Performance Report

## Overview

The overview provides a short statement from the Chair and CEO of EPSRC setting out some of the key highlights for the year, with the main body of the overview summarising progress against the organisation's Delivery Plan for the period 2016/17

### Statement from the Chairman and Chief Executive

These are exciting times as we move towards the formation of UK Research and Innovation (UKRI). The Engineering and Physical Sciences Research Council is well placed to enter this new era with strength and clarity of vision as demonstrated by our investments and achievements throughout this year.

Our vision is for the UK to be the best place in the world to research, discover and innovate and there is no better way to recognise research and discovery excellence than through the celebration on the global stage of British academics winning Nobel Prizes in both Chemistry and Physics. These successes are immensely important since we know that fundamental research is essential for us to make the new discoveries on which innovation depends. They show the UK, and EPSRC more specifically, to be right at the forefront of science.

Innovation is also about partnership whether that is across disciplines, across academia and industry or across the globe. We take great pride in the fact that 56% of our portfolio is multidisciplinary and 55% is collaborative with other partners. We also recognise that the international aspect of excellent research is more important than ever before as we look to our future outside of the EU - EPSRC continues to work with over 50 countries across the world, including China and India, to ensure that the best researchers collaborate and take forward research that will bring benefit to all.

The nature and impact of our investments are framed through the Prosperity Outcomes of our Delivery Plan - namely a Productive, Healthy, Resilient and Connected Nation. These will continue to form the framework against which EPSRC will set its priorities as we move into UKRI. We are delighted to highlight below the achievements of the last year as a strong foundation for the future.

#### **£128m investment in Henry Royce Institute**

In February 2017, the Minister of State for Universities, Science, Research and Innovation, confirmed £128m of funding for research equipment and facilities across a number of university partners to develop advanced materials as part of the Henry Royce Institute. EPSRC has supported this initial investment and, working with partner organisations, it will continue to support the £235m investment in the Institute to allow the UK to grow its world-leading research and innovation base in advanced-materials science, which is fundamental to all industrial sectors and the national economy. The minister said: "Our modern industrial strategy will help us ensure the UK maintains its status of one of the best places in the world to conduct research, discover and innovate."

#### **UKCRIC to deliver world-leading research on infrastructure and cities**

EPSRC has supported the establishment of the UK Collaboratorium for Research on Infrastructure and Cities (UKCRIC) with an investment of £125m across 11 universities in February 2017 - in total more than £216m is being invested in the new facilities by EPSRC and partner organisations, bringing together 14 universities. With inadequate infrastructure estimated to cost the UK £2m a day, UKCRIC will allow academia, industry, government and end users to collaborate to upgrade infrastructure and reduce its cost to the nation.

#### **£100m investment for new Rosalind Franklin Institute**

The new Rosalind Franklin Institute (RFI) - delivered and managed by EPSRC and named in honour of the pioneering British scientist whose use of X-rays to study biological structures played a crucial role in the discovery of DNA's 'double helix' structure by Francis Crick and James Watson - will bring together UK strengths in the physical sciences, engineering and life sciences to create a national centre of excellence in technology development and innovation. Announced by the Business Secretary in February 2017, he said:

*"The UK has always been a pioneer in the world of science, technology and medical research. It's this excellence we want to continue to build on and why we made science and research a central part of our Industrial Strategy - strengthening links between research and industry, ensuring more home-grown innovation continues to benefit millions around the world."*

### **£60m boost to strengthen the UK's manufacturing base through six new research hubs**

Six new £10m research hubs that will explore and improve new manufacturing techniques across fields such as targeted biological medicines, 3D printing, and composite materials were announced in December by the Universities and the Science Minister: *"Developing new innovative manufacturing techniques will help UK industry create new products, explore more business opportunities and ensure the UK becomes more competitive and productive."* Funded by government through EPSRC, the hubs will draw together expertise from 17 universities and 200 industrial and academic partners to upgrade the UK's manufacturing capabilities and take greater advantage of the UK's innovative strengths.

### **Celebrating Nobel Prize successes in chemistry and physics**

Professor Sir J Fraser Stoddart, who achieved his breakthrough while supported by EPSRC, was jointly awarded the Nobel Prize in Chemistry with Professors Bernard Feringa and Jean-Pierre Sauvage for their development of molecular machines, a thousand times thinner than a human hair, that could potentially be used for the delivery of drugs inside the human body and to develop new smart materials. David Thouless, Duncan Haldane and Michael Kosterlitz were jointly awarded the Nobel Prize in Physics in recognition of their work in the field of condensed matter physics, which could be utilised in electronics and computing.

### **UK and China research - helping to power the future**

In September 2016, the UK Innovation is GREAT showcase took place in Shanghai China, recognising the valuable research collaborations already established between scientists and engineers from UK and China. In the fields of energy and low carbon innovation in particular, the Research Councils UK (RCUK) Energy Programme, led by EPSRC, has been working with partners to address challenges that face the UK, China and the rest of the world. Over the last decade £33 million has been invested in joint UK-China energy research projects, most of which have been supported by matched resources from Chinese funders.

### **Self-driving car makes public debut following EPSRC support**

There was significant media interest as a self-driving car was trialled in public for the first time in the UK. The Selenium autonomy software that allows the vehicle to navigate its way around the environment was developed at the Oxford Robotics Institute at Oxford University following support from EPSRC. Professor Paul Newman, BP Professor of Information Engineering in Oxford University's Department of Engineering Science, co-founder of Oxbotica and EPSRC Leadership Fellow, said: *The Leadership Fellowship allowed me to accrete some superb people around me ... EPSRC has really got behind me in the strategic thinking about what it takes to run a robotics group..."*

### **New X-ray technique could improve bomb detection and breast cancer treatment**

An exciting X-ray imaging technology has been successfully developed to the point where it is now ready for translation into all kinds of beneficial applications, including potentially life-saving uses in security and healthcare. Funded by EPSRC, a major five-year project led by University College London has achieved this breakthrough. The work also involved dozens of industrial, academic and research partners in the UK and worldwide. Compared with conventional X-rays, the technology can, for example, identify tumours in living tissue earlier and spot smaller cracks and defects in materials. This is because it excels at determining different shapes and different types of matter - a capability that conventional X-rays could only match by using prohibitively high doses of radiation.

# Overview

## Brief History and Statutory Background

The Engineering and Physical Sciences Research Council (EPSRC) was founded as a Research Council and received its Royal Charter in 1994 following a review of its predecessor body, the Science and Engineering Research Council (1981-1994). It traces its history back to the foundation of the Science Research Council in 1965. Based in Polaris House, Swindon, it operates alongside the other Research Councils and Research Councils UK (RCUK). EPSRC is a Non-Departmental Public Body sponsored by the Department for Business, Energy and Industrial Strategy (BEIS).

## Nature of Organisation

EPSRC is at the heart of discovery and innovation in the UK, and is the UK's main agency for funding research in engineering and the physical sciences. EPSRC invests around £900m a year in research and postgraduate training to help the nation handle the next generation of technological change. The areas covered range from information technology to structural engineering, and mathematics to materials science. This research forms the basis for future economic development in the UK and improvements for everyone's health, lifestyle and culture.

The objectives for which EPSRC was established are formally laid out within the Royal Charter:

- (i) to promote and support, by any means, high-quality basic, strategic and applied research and related postgraduate training in engineering and the physical sciences
- (ii) to advance knowledge and technology (including the promotion and support of the exploitation of research outcomes), and provide trained scientists and engineers, that meet the needs of users and beneficiaries (including the chemical, communications, construction, electrical, electronic, energy, engineering, information technology, pharmaceutical, process and other industries), thereby contributing to the economic competitiveness of our United Kingdom and the quality of life
- (iii) in relation to the activities as engaged in by the Council under (i) and (ii) above and in such manner as the Council may see fit:
  - o to generate public awareness
  - o to communicate research outcomes
  - o to encourage public engagement and dialogue
  - o to disseminate knowledge
  - o to provide advice.

The Vision and Goals as laid out within the Strategic Plan published in 2015 are:

**VISION** – The EPSRC vision is for the UK to be the best place in the world to research, discover and innovate

**GOALS** – The vision is supported by two goals which emanate from the Charter:

**Research and Discover** – For the UK to be positioned as an international research leader, where discovery thrives and our support generates the highest quality research in engineering and the physical sciences.

**Research and Innovate** – For the UK's excellent research base and talented researchers to work with us to accelerate innovation for the benefit of society and the economy.

As a key player in the innovation and knowledge ecosystem, EPSRC has been delivering high quality research and training in Engineering and Physical Sciences (EPS).

Over the past few years the environment and the context in which EPSRC operates has changed both nationally and internationally. We have responded to these changes by developing our delivery plan and strategies to recognise external influences, the UK's economic situation and government strategies. This is to ensure that we maintain focus whilst working for the UK to be the best place in the world to research, discover and innovate, thus delivering prosperity for the nation. Going forward our central intention is for our investments to support four interlinked outcomes (Productive, Connected, Resilient and Healthy nation) which collectively underpin UK prosperity. We continue to support excellence with impact and ensure that our portfolio of research and training makes a positive difference to the UK. We strive to protect the UK's long-term capability in research capitalising on strengths in disciplines to build multidisciplinary teams to deliver on economic and societal challenges.

Our strategies and interventions accelerate impact through partnerships and leverage and further details follow.

<b>Delivering national needs</b>		
<b>Priority/Objective</b>	<b>Deliverables/Milestones</b>	<b>Progress/Commentary</b>
Building on our strong foundations to maintain and enhance excellent research in Engineering and Physical sciences disciplines.	<ul style="list-style-type: none"> <li>• Monitor performance at UK level by analyses of citation impact of EPS disciplines, benchmarking them against world average and comparator countries</li> <li>• Monitor performance of EPSRC supported research through analysis of outcomes submitted to the Researchfish outcomes collection system.</li> </ul>	<ul style="list-style-type: none"> <li>• Relative impact of publications from EPSRC funded research (normalised to UK values) is consistently high across all the EPS disciplines.</li> <li>• EPSRC publications are cited twice as often as the world average for the subject.</li> <li>• EPSRC's share of publications in all top percentiles<sup>1</sup> is at least twice as high as the world average across nearly all percentiles and subjects.</li> <li>• Over 100,000 publications, over 900 policy influences and approximately £6.5bn of further funding have been reported from EPSRC investments from the Researchfish data collection for EPSRC outcomes and outputs in 2016.</li> </ul>

<sup>1</sup>Another way of measuring the impact of research is by looking at citation percentiles which allows for an easy comparison of EPSRC's relative performance in the different percentiles, i.e., the number of publications that belong to the world's top x% of most cited publications. This metric compares, per subject area, the percentage of EPSRC's output in a percentile to the world's share of top cited publications in the same subject.

## Overview

Priority/Objective	Deliverables/Milestones	Progress/Commentary
Investment priorities to deliver prosperity for the nation	<ul style="list-style-type: none"> <li>Delivering the four prosperity outcomes of productive, connected, resilient and healthy nation.</li> </ul>	<ul style="list-style-type: none"> <li>An outcomes focussed delivery plan for 2016-17 to 2019-20 published in May 2016 reiterated our ambition for EPSRC's investments to contribute to a productive, connected, resilient and healthy nation.</li> <li>On 1 April 2017, 31% of our portfolio mapped to the 'Productive nation' outcome and 24%, 23% and 22% mapped to healthy, connected and resilient nation outcomes respectively.</li> </ul>
Protecting the UK's long-term capability	<ul style="list-style-type: none"> <li>Aiming towards a 60:40 balance between a programme of long term excellent research of 'community driven/ investigator led research' and 'strategic research' to deliver the prosperity outcomes.</li> <li>Deliver a portfolio of research that fosters multidisciplinary research to answer key questions.</li> <li>Capitalise on EPSRC's leadership and extensive knowledge of the EPS landscape to prioritise investment choices at research area level.</li> </ul>	<ul style="list-style-type: none"> <li>Our expenditure of £883.4m in 2016-17 achieved a balance of 57:43 of 'community driven/ investigator led research' to 'strategic research'.</li> <li>Around 56% of our grant portfolio is multidisciplinary.</li> <li>EPSRC enables researchers to push the frontiers of discovery; around 51% of applications received and 71% of funded research and fellowship grants were judged by the peer review panels to be 'adventurous' (i.e. showing high levels of creativity and having the potential to be transformative).</li> <li>The rationales to update research area trajectories, following a refresh of balancing capability, are now published on EPSRC's website. Rationales provide an excellent knowledge resource for the UK research base.</li> </ul>

<sup>2</sup>Industrial Cooperative Awards in Science & Technology (CASE) provides funding for PhD studentships where businesses take the lead in arranging projects with an academic partner of their choice.



Priority/Objective	Deliverables/Milestones	Progress/Commentary
Investing in highly skilled numerate individuals	<ul style="list-style-type: none"> <li>Invest in training at all career stages to nurture and develop people with leadership potential.</li> </ul>	<ul style="list-style-type: none"> <li>In 2016-17 we supported over 2,700 new post graduate research students. This includes 211 Industrial CASE students<sup>2</sup>.</li> <li>We have invested around £45m to fund 63 fellowships at different career stages.</li> <li>A mid-term review of the Centres for Doctoral Training (CDT) is underway and will conclude by summer 2017. <ul style="list-style-type: none"> <li>Overall the CDTs are meeting their ambitious targets of industrial engagement and leverage.</li> <li>Demand for student places in CDTs remains very high.</li> </ul> </li> <li>Around 43 per cent of EPSRC-funded students went on to work in the private sector, up three per cent from last year.<sup>3</sup></li> </ul>
Investing to ensure national funding has real impact	<ul style="list-style-type: none"> <li>Invest in internationally competitive scientific infrastructure including world class laboratories.</li> </ul>	<ul style="list-style-type: none"> <li>EPSRC's Impact Acceleration Accounts have reported 451 patents and around £2.9 million worth licensing agreements between 2012-2016. Over the same period IAA projects have leveraged more than £93M cash and in-kind contributions from company partners.</li> </ul>
Investing in state-of-the-art infrastructure	<ul style="list-style-type: none"> <li>Invest in internationally competitive scientific infrastructure including world class laboratories.</li> </ul>	<ul style="list-style-type: none"> <li>ARCHER (the UK National Supercomputing Service) is operating successfully, providing access to over 3,500 researchers including 800 students and over 500 postdoctoral students.</li> <li>Building on the success of the ARCHER service, EPSRC is initiating a project to scope the successor to the current Cray XC 30 machine and will be making announcements later in 2017 for engagement with vendors and the communities.</li> </ul>

<sup>3</sup> Calculation based on data from Destination of Leavers survey 2014-15 which provides detailed information on the activities of students six months after leaving higher education <https://www.hesa.ac.uk/news/21-07-2016/graduate-destinations>

<sup>4</sup> These are just a few of the many outputs captured through the annual reporting of the IAA investments.

# Overview

Priority/Objective	Deliverables/Milestones	Progress/Commentary
Investing in international collaborations	<ul style="list-style-type: none"> <li>• Build or enhance partnerships with global research leaders.</li> <li>• Build a portfolio of research addressing UN development goals which contribute to the UK's commitment to Official Development Assistance (ODA).</li> </ul>	<ul style="list-style-type: none"> <li>• A new lead agency agreement between The United States National Science Foundation (NSF) Directorate for Engineering (ENG), Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) and the EPSRC Engineering Theme has been initiated.</li> <li>• EPSRC has continued to strengthen its partnerships with China and India.</li> <li>• EPSRC's 2016-17 Global Challenge Research Fund (GCRF) allocation (£10m) has been awarded through institutional sponsorship grants to 35 universities</li> </ul>
Realising the benefits of government investment in grand challenges	<ul style="list-style-type: none"> <li>• Deliver ambitious multidisciplinary investments in grand challenge infrastructures announced by the government.</li> </ul>	<ul style="list-style-type: none"> <li>• £105m is confirmed for the construction of the building which will host The Sir Henry Royce Institute for advanced materials in Manchester.</li> <li>• State-of-the-art new facilities to upgrade the nation's infrastructure will be created at 11 universities as part of the UK Collaboratorium for Research on Infrastructure and Cities (UKCRIC). EPSRC has supported the establishment of UKCRIC with an investment of £125m, and in total more than £216m is being invested in the new facilities by EPSRC and partner organisations.</li> </ul>

Priority/Objective	Deliverables/Milestones	Progress/Commentary
Enhancing equality and diversity	<ul style="list-style-type: none"> <li>Implement policies to attract and support the best researchers from a diverse population into the research and innovation ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>We are working with stakeholders to deliver the RCUK Equality, Diversity &amp; Inclusion Action plan which was launched in May 2016.</li> <li>The EPSRC Equality and Diversity Team are working with business psychologists Pearn Kandola to deliver an Unconscious Bias Training Programme for EPSRC staff, Council members and our advisory boards.</li> <li>EPSRC seeks to harness talent from all available sources; in 2016-17, 15.2% of our funded investigators were female, an increase from 12.4% and 13.9% in 2014-15 and 2015-16 respectively.</li> </ul>
Driving an efficient research base	<ul style="list-style-type: none"> <li>Efficiencies in administration resources with a target of less than 2% of our annual budget.</li> <li>Efficiency saving through shared resources.</li> </ul>	<ul style="list-style-type: none"> <li>Administration spend was 1.4 % of total budget in 2016-17 (1.2% after 2015-16). EPSRC continues to encourage sharing of resources and the policy is embedded in the equipment and facilities that it funds.</li> </ul>

### An efficient and effective organisation

Priority/Objective	Deliverables/Milestones	Progress/Commentary
Reforming the Research Councils	<ul style="list-style-type: none"> <li>Working with the Department for Business, Energy and Industrial Strategy (BEIS) and other stakeholders to contribute to and implement change whilst carrying on business as usual to minimise disruption to the research base.</li> </ul>	<ul style="list-style-type: none"> <li>EPSRC employees are actively participating in the change to the governance and organisation of research funding bodies, as a result of the establishment of UKRI, with senior members helping to shape work streams through membership of Boards and working groups, working closely with colleagues in BEIS.</li> </ul>

# Overview

Effectiveness through partnerships		
Priority/Objective	Deliverables/Milestones	Progress/Commentary
Partnership with Universities	<ul style="list-style-type: none"> <li>Build successful partnerships with Universities to maximise impact from EPSRC's investments.</li> </ul>	<ul style="list-style-type: none"> <li>We have partnered with 235 Academic organisations in 2016-17 to deliver excellence in research.</li> <li>We have continued the positive engagement with our strategic framework Universities which has enabled us to respond to the changing policy landscape and develop our new delivery plan.</li> </ul>
Partnerships with business and innovation funders	<ul style="list-style-type: none"> <li>Maximise leverage from partnerships.</li> <li>Co-invest with partners in the innovation ecosystem in order to maximise the impact and innovation potential of our investments.</li> </ul>	<ul style="list-style-type: none"> <li>Around 55% of our portfolio is collaborative with users which include businesses, charitable organisations, government departments and others. This year we have collaborated with over 3,800 user organisations of which 542 were 'new' to EPSRC (i.e. they had not collaborated on EPSRC investments over the last 10 years).</li> <li>Total leverage on the EPSRC portfolio on 1 April 2017 from user organisations was £1.2bn.</li> <li>Over 78% of research grants announced in 2016-17 have direct relevance to various industrial sectors including but not limited to Aerospace, Defence and Marine, Chemicals, Construction, Communications, Energy, Electronics, healthcare, IT, and Manufacturing.</li> <li>EPSRC investments are well placed to deliver for the Government Industrial strategy. Our investments in areas that align with the Industrial strategy have leveraged £216m from partner organisations.</li> <li>In 2016-17 we have invested over £24m to support activities with Innovate UK to take research in areas such as energy, industrial biotechnology and quantum technologies through to innovation.</li> <li>As part of working with Innovate UK, EPSRC continues to lead on delivering Innovation and Knowledge Centres, to support emerging technologies which includes up to £2m per year to support Innovate UK managed Knowledge Transfer Partnerships.</li> <li>EPSRC is making £20m available through Prosperity Partnerships to support existing, strategic, research-based partnerships between businesses and universities.</li> </ul>

## Financial Highlights

A more detailed analysis of the financial highlights noted below can be found in the Financial Statements on pages 68 to 71.

2015-16 statements have been re-represented in line with HM Treasury's NDPB Green-Illustrative Accounts. This aligns the presentation of EPSRC's accounts with BEIS and its other partner organisations.

Statement of Comprehensive Net Expenditure	2016-17 £000	Re-represented 2015-16 £000
Total Operating Income	(27,962)	(28,193)
Total Operating Expenditure	968,058	935,546
<b>Net Expenditure</b>	<b>940,096</b>	<b>907,355</b>
<b>Other Comprehensive Net Expenditure</b>		
Net (Gain)/Loss of Revaluation of Property Plant and Equipment	(589)	(291)
<b>Total Comprehensive Net Expenditure</b>	<b>939,507</b>	<b>907,062</b>

Statement of Financial Position	As at March 2017 £000	As at March 2016 £000
Total Non-Current Assets	12,089	21,220
Total Current Assets	44,231	36,621
Total Current Liabilities	(49,397)	(39,172)
<b>Total Taxpayers' Equity</b>	<b>6,923</b>	<b>18,669</b>

Statement of Cash Flows	2016-17 £000	2015-16 £000
Net Cash Outflow from Operating Activities	(917,138)	(906,666)
Net Cash Flow Inflow/(Outflow) from Investing Activities	(74)	(14)
Net Cash Flows from Financing Activities	927,761	905,331
<b>Net Increase/(Decrease) in Cash and Cash Equivalents in the period</b>	<b>10,549</b>	<b>(1,349)</b>

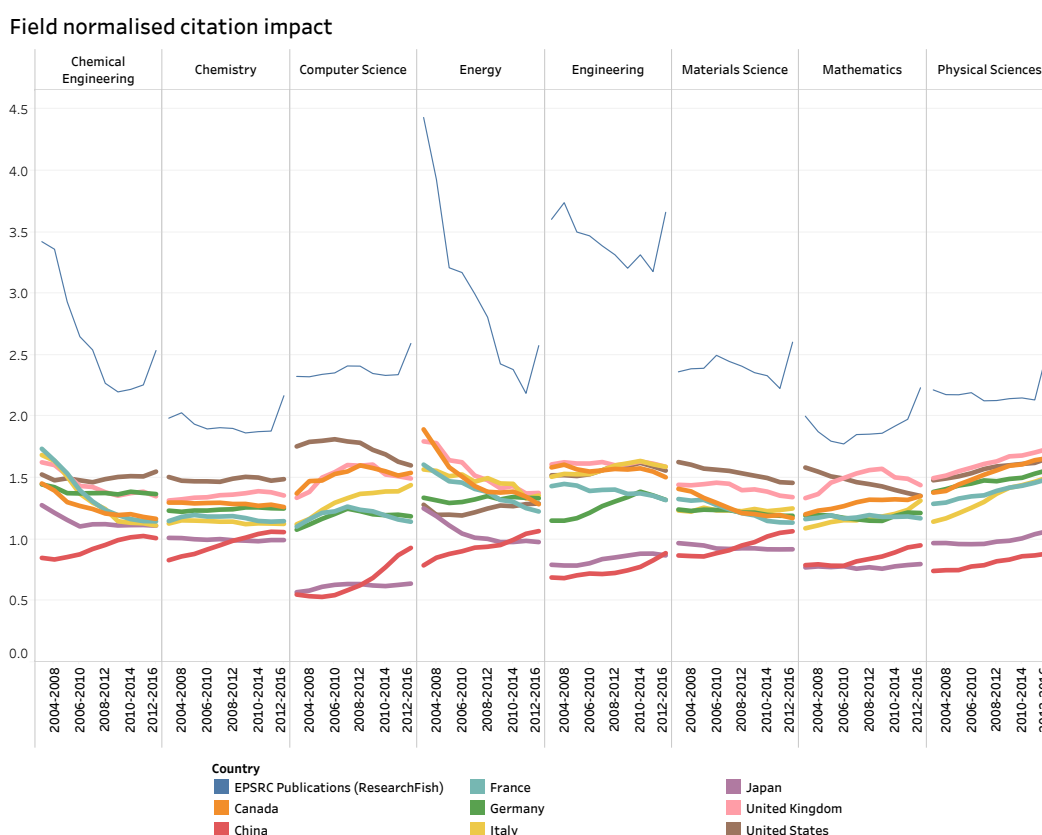
2015-16 statements have been re-classified in line with HM Treasury's NDPB Green – Illustrative Accounts. This aligns the presentation of EPSRC's accounts with BEIS and its other partner organisations, this reflects in the primary statements and the disclosure notes.

# Overview

## Building on our strong foundations to maintain and enhance excellent research in Engineering and Physical sciences (EPS) disciplines

EPSRC plays a pivotal role to nurture, support and catalyse outputs and outcomes from the research base. Through its policies, support and strategic engagements EPSRC strives to enhance the success of the vibrant and broad research base and the scientific and innovative advances made especially in the field of engineering and physical sciences (EPS).

Analysis of data up to 2016 shows that the UK's citation impact in different EPS disciplines continues to demonstrate its strengths and is world leading in Mathematics and Physical Sciences].



Note: Indicator of mean citation impact and comparison of the number of citations per document. Accounts for differences in citation accrual over time, differences in citation rates for different document types as well as subject-specific differences. Values within a field are normalised so that the world average for the field is always equal to one. (Based on data from Elsevier SciVal, for all publication types, i.e. articles, conference papers, reviews etc.)

An independent analysis of publications submitted to Researchfish by EPSRC supported researchers indicates that EPSRC's share of publications in all top percentiles<sup>5</sup> is at least twice as high as the world average across nearly all percentiles and subjects. In Engineering, Computer Science and Energy, there are at least 3.5 times as many EPSRC supported publications in the top 1% highly cited percentile than would be expected based on the world average.

<sup>5</sup>Another way of measuring the impact of research is by looking at citation percentiles which allows for an easy comparison of EPSRC's relative performance in the different percentiles, i.e., the number of publications that belong to the world's top x% of most cited publications. This metric compares, per subject area, the percentage of EPSRC's output in a percentile to the world's share of top cited publications in the same subject.

### EPSRC-funded academic awarded 2016 Nobel Prize in Chemistry

Professor Sir J Fraser Stoddart was jointly awarded the 2016 Nobel Prize in Chemistry with two other academics for their development of molecular machines, a thousand times thinner than a human hair. The tiny molecular machines could potentially be used for the delivery of drugs inside the human body and to develop new smart materials. Professor Stoddart's initial work in 1991, which is cited in the Nobel Prize announcement as enabling the field of molecular machinery to take a 'big leap forward', was funded by EPSRC's predecessor SERC<sup>6</sup>. As part of this work, Professor Stoddart produced a 'molecular shuttle' by threading a molecular ring on a rod-like structure acting as an axle, and moving the ring when heat was applied. This work has led to further progress through the development of molecular machines such as lifts, muscles and a computer chip. In addition to the grant which laid the foundation for the work, Professor Stoddart has received support from the EPSRC for over 25 other projects, two of which have been collaborative international projects following his move to the USA.

### Research Outputs and Outcomes

EPSRC uses the Researchfish online system for gathering information on research outputs and outcomes from its investments. The 'data collection period' held in early 2016 was the second time we asked researchers to provide information on their research outcomes through the system. The analysis of the data collected was published in the report 'Research outputs 2016'<sup>7</sup>. The report is an overview of the data gathered about outcomes arising from EPSRC grants with end dates after 1 November 2009. Key highlights from the report include:

- The outcomes of EPSRC supported research are relevant to a wide range of sectors, for example but not limited to, energy, digital/communication/information technologies and healthcare
- EPSRC investments have resulted in over 100,000 publications
- EPSRC investments are highly collaborative with almost 50% grants reporting collaboration or partnership with research users
- EPSRC investments have resulted in approximately £4.5bn of further funding
- There have been over 900 policy influences reported at local, national and international levels
- EPSRC funded research has resulted in more than 1,000 patent applications in the past decade
- At least 548 spinouts created since 2004 of which 80% are still active

<sup>6</sup> "Scientific Background on the Nobel Prize in Chemistry 2016 molecular machines compiled by the Class for Chemistry of the Royal Swedish Academy of Sciences," [https://www.nobelprize.org/nobel\\_prizes/chemistry/laureates/2016/advanced-chemistryprize2016.pdf](https://www.nobelprize.org/nobel_prizes/chemistry/laureates/2016/advanced-chemistryprize2016.pdf), p. 5, 2016

<sup>7</sup> <https://www.epsrc.ac.uk/newsevents/pubs/researchoutputs2016/>

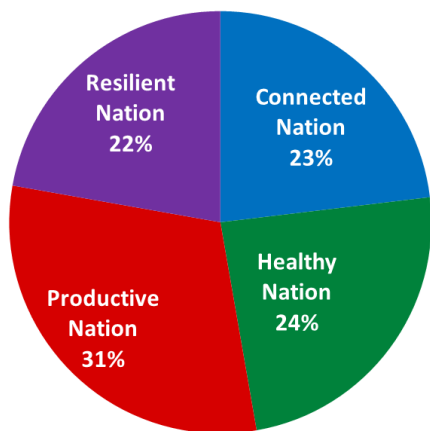
# Overview

## Investment priorities to deliver prosperity for the nation

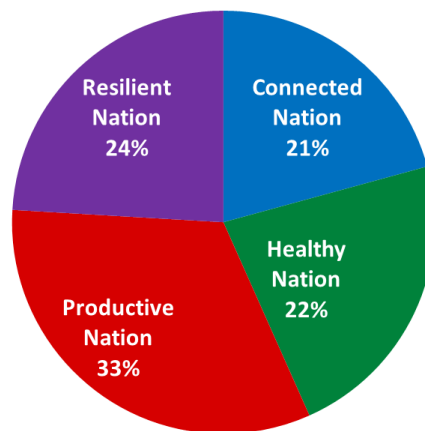
EPSRC is a key player in the research knowledge infrastructure and strives to have forward looking policies to secure the UK's strengths in Engineering and Physical sciences (EPS) and deliver impact that helps the UK to succeed in the global economy. The impact of our investments are varied and cut across all industrial sectors. To articulate our ambition for our investments, our Delivery Plan 2016-17 to 2019-20 vision is of delivering prosperity for the UK through four interconnected outcomes of a productive, connected, resilient and healthy nation. The framework proposed in the delivery plan was reached through extensive engagement with stakeholders and is a strategic expression of how EPS research and skills add value to the nation, as well as providing an ambitious vision to inspire researchers. Our focus on delivering outcomes for the nation comes with a commitment to maintain a programme of long term research which combines 'challenge led' and 'community generated' ideas thus maintaining a healthy pipeline of research from discovery through to innovation.

The EPSRC portfolio mapped to the four prosperity outcomes as on 1 April 2017, based on relevance of our research areas. (Some research areas map to more than one outcome).

EPSRC current portfolio mapped to prosperity outcomes by number



EPSRC current portfolio mapped to prosperity outcomes by value



### EPSRC National Centre for Energy Systems Integration

The £20m National Centre for Energy Systems Integration, funded by EPSRC, Siemens and Newcastle University in 2016, will bring together energy experts from around the world to help unravel the energy network and understand future supply and demand. Bridging a pivotal gap in our drive towards a fully integrated, smart energy network, the centre is crucial to improving energy efficiency, driving down customer bills and reducing carbon emissions. **Looking for the first time at the energy system as a whole;** gas, power, renewables, heating and cooling, the centre will pave the way to a flexible smart infrastructure, empowering customers and giving them greater control of their energy use while allowing industry to meet the tough new low carbon targets.



### Statistical tools for a productive nation

It is estimated that by 2020 there will be more than 30 billion devices, ranging from smart phones to oil well sensors, collecting data streams. Being able to interpret and take advantage of all this data will lead to great economic and societal benefits, providing advances in areas such as e-health and communications and enabling more of us to lead healthier and more productive lives. A report by SAS and the Centre for Economics and Business Research states that Big Data and the Internet of Things (IoT) is set to be worth £322 billion to the UK economy, or 2.7% of GDP, by 2020. This new form of data brings with it new data analytic challenges. For example, while traditional statistical methods were suitable, and readily computed, for modest amounts of data, they were not developed with the streaming data age in mind. To address this, a new programme of research is being funded by EPSRC. The £2.75m StatScale: Statistical Scalability for Streaming Data programme is being led by members of Lancaster University's Data Science Institute in partnership with colleagues from the University of Cambridge's Statistical Laboratory and benefits from close collaboration with industrial partners. Companies including Shell UK, BT, AstraZeneca and public bodies such as the Office for National Statistics have agreed to trial new methods and models that emerge from the programme so that they can be rapidly tested and refined in real-world situations. New research into the interpretation of data could lead to a wide range of benefits, ranging from more efficient use of resources and higher productivity to health improvements.

### Healthier homes and lower energy bills

The Engineering and Physical Sciences Research Council (EPSRC) has funded the development of CharIoT by the University of Southampton, the University of Nottingham and the Centre for Sustainable Energy (CSE). CharIoT which is a unique new system that simultaneously records temperature, humidity and energy use in the home, has now been trialled in over 20 low-income homes. Harnessing Internet of Things technology, the system generates easy-to-use data that can help local authorities, housing associations, energy suppliers, health authorities and others to target and tailor the energy advice they give to vulnerable people. Cold or damp can exacerbate medical conditions ranging from colds, flu, arthritis and asthma to chronic obstructive pulmonary disease (COPD), circulatory diseases and mental illness. In total, nearly one million people in the UK suffer from COPD, for example, while cardio-vascular disease causes 42,000 premature deaths a year. People in the coldest houses can be most at risk.

### Bringing environmental science to digital age

Professor Gordon Blair of Lancaster University's School of Computing and Communications has been awarded a £2.5m Senior Fellowship to find new ways of enabling the countryside to reap the benefits of the digital age. Cities have capitalised on the Internet of Things and cloud computing (remote storing of readily accessible information), changing the way many city-dwellers live and work. However, from flooding monitoring and real-time livestock tracking to data sharing among citizen scientists around the globe, technology can profoundly improve our understanding and management of the natural world. Focusing on three major areas of digital innovation: the Internet of Things (IoT), cloud computing and data science, the five-year EPSRC funded project entitled 'The role of Digital Technologies in understanding, mitigating and adapting to environmental change' - will examine how digital data can inform land management, support food security and tackle biodiversity loss. This is a multidisciplinary project tapping into the expertise of academics within Lancaster University's Data Science Institute, its School of Computing and Communications, the Lancaster Environment Centre and Statistics and Operational Research (STOR-i) centre. It will also involve experts at the Centre for Ecology and Hydrology.

# Overview

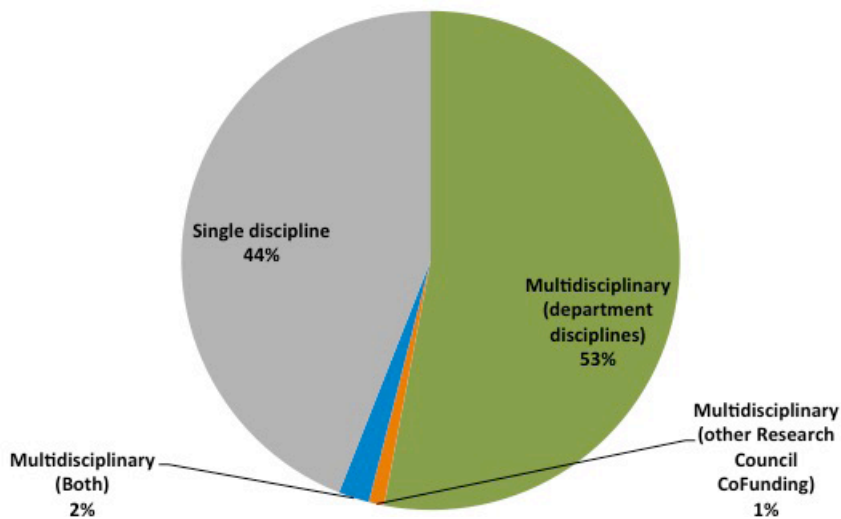
Over 78% of research grants (by number) announced in 2016-17 have direct relevance to various industrial sectors including but not limited to Aerospace, Defence and Marine, Chemicals, Construction, Communications, Energy, Electronics, Healthcare, IT and Manufacturing. If we look at research grants by value, this figure rises to over 85%. This demonstrates EPSRC's continued focus on delivering economic growth and prosperity for the nation.

## Protecting the UK's long-term capability

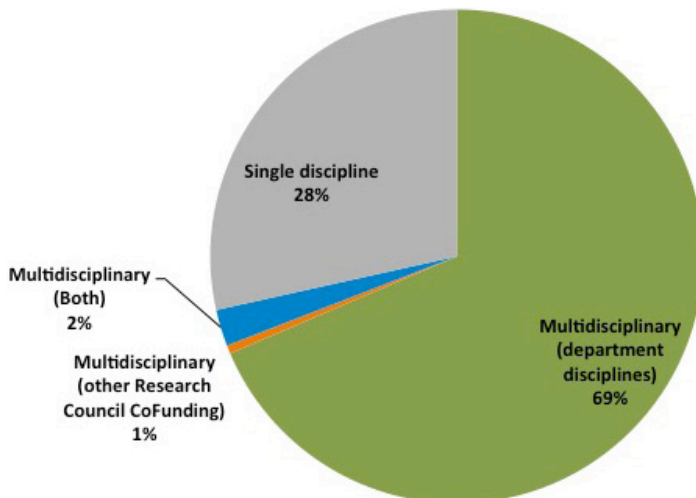
EPSRC focusses on having a balanced portfolio of research from discovery through to innovation, recognising that greater impact of its investments can be achieved through building the right collaborations such as facilitating industrial engagement or supporting multidisciplinary working.

Approximately 56% of our research portfolio on 1 April 2017 was multidisciplinary (based on number of research grants).

Research Grant portfolio: Multidisciplinary Grants by number



Research Grant portfolio: Multidisciplinary Grants by value



## £60m boost to strengthen the UK's manufacturing base through six new research hubs

Six new £10m research hubs that will explore and improve new manufacturing techniques across fields such as targeted biological medicines, 3D printing, and composite materials were announced in December 2016. This investment aligns with the aim set out in the government's Industrial Strategy green paper of furthering UK economic growth and has an additional £87.5m total contribution from partners, academia and industry. The hubs will draw together expertise from 17 universities and 200 industrial and academic partners. This investment will lay the foundations to allow industry and our world-leading universities to thrive for years to come.

### Self-healing construction materials

The Resilient Materials 4 Life (RM4L) project, announced in March 2017 supported with an investment of £4.7m by EPSRC, will look to build on the success of the Materials 4 Life (M4L) project that has led to major advances in the development of transformative construction materials, such as adaptable, self-diagnosing and self-healing materials. The overall project cost will be around £6m, including contributions from partners. M4L was announced in 2013, and led to a number of developments in the field of these innovative new technologies, including the UK's first self-healing concrete trials using materials such as shape-memory polymers, microcapsules and flow networks containing mineral-based healing agents and calcite forming bacteria.

### Balancing Capability

EPSRC, after extensive engagement and dialogue with the research community, published refreshed research area rationales as part of its Balancing Capability strategy. This proactive approach resulted in a positive reception of the decisions. Research fortnight view<sup>8</sup> was *"Balancing Capability has been based on one of the UK's largest ever consultation exercises. It has been a big and open conversation between the EPSRC and the UK's physical scientists and engineers, for which the Council deserves to be congratulated."*

The EPSRC Council reviewed all the research areas that form the building blocks of its portfolio and confirmed the suggested future strategies for these areas over the next five years. Each piece of evidence was considered in relation to the whole portfolio in order to make well informed decisions. Each research area is accompanied by a 'rationale' which states the reasons for the strategic direction for each research area. The research area strategies have been developed to align with EPSRC's Delivery Plan and will help achieve a ratio, committed to by EPSRC's Council, of 60 per cent community-led and 40 per cent strategic intervention by 2021. This balance will be achieved by encouraging the research community to continue to work together, across disciplines, and to develop challenges and proposals that are less directed by topic-specific, time bound calls.

This is not an isolated process and EPSRC is committed to remain flexible and responsive to changes and discoveries in policy environments, government machinery and research.

<sup>8</sup> <https://www.researchprofessional.com/0/rr/news/uk/views-of-the-uk/2017/2/Research-Fortnight-View--EPSRC-s-Balancing-act.html>

# Overview

## Investing in high skilled numerate individuals

EPSRC recognises that a successful research endeavour and a successful country both need skilled people to deliver the desired outcomes. It provides excellent training environments and breadth of training for over 2,700 PhD students to deliver the next generation of researchers and high end skilled workforce that the UK needs to increase productivity and enable innovation and new ideas in the workplace. In addition to doctoral training, we also fund fellowships to enable researchers at different career stages to progress and further develop their capability and leadership in the research environment. Our focus has been to increase the diversity and provide flexible support systems to train and grow careers in science and engineering. Around 43% of EPSRC funded students go on to work in the private sector<sup>9</sup>.

In 2016-17 we have funded 63 fellowships which included 35 Early Career Research Fellowships, 9 fellowships to support established researchers, 14 postdoctoral fellowship and 5 other fellowships. Over the same period we have supported over 2,700 new PhD students.

### The COATED CDTs

The objectives of the COATED brand of Centres for Doctoral Training established in 2012 is to produce EngD Research Engineers (REs) in the field of industrial functional coatings with a focus on coatings that generate, store and release energy. The use of functional coatings is increasing across many sectors due to product improvements, value added benefits and product differentiation opportunities. The science behind coatings and their lifetimes is complex and a talent stream of highly trained people is required to support this sector. The CDT aims to train high calibre individuals, creating new scientific knowledge and a talent pipeline in this burgeoning sector. The demand for the CDT remains high. In 2016, the CDT received 108 applications from which 15 were offered a place on the programme. The programme also recognises the value of diversity of their talent stream and has a more balanced gender ratio. All projects of this programme have industry sponsors demonstrating the industry pull for this training. Approximately £3m has been contributed to date by Industry for the CDTs and current partners include Tata Steel, BASF and The Royal Mint and Small and Medium Enterprises (SMEs) such as Hybrisan.

#### Some of the impacts from this CDT have been

- A number of publications in leading Journals of the field.
- Best paper prize at 15th International Sustainable Energy Technologies Conference, Singapore 2016.
- Research that has formed the basis of the Welsh Government's policy on recovery of materials from waste electronics, this was presented to the House of Commons.
- Patent and a spinout.
- Additional money from the Welsh European Funding Office (WEFO). These funds (£8.6million) have been used to fulfil the requirements for 10 EngD places per year on COATED2 and also to create an additional CDT cohort in Advanced Materials and Manufacturing.

## Investing to ensure national funding has real impact

EPSRC aims to maximise both academic excellence and the economic and social impact from the investments it makes through its research and training portfolio. We strive to provide the support system that enables impact to arise more quickly so as to bring benefit to the UK. There are various routes through which we facilitate impact for example through co investments with end users, industry and businesses and targeted investments which accelerate impact. Our investments in knowledge exchange and impact support a wide

<sup>9</sup> HESA Destination Leaver of Higher Education data 2016

range of activities, a proportion of which, such as IAAs, are focused on translating research. Building on a £60m investment, topped with a further £30m in 2015 through Impact Acceleration Accounts (IAAs) we have not just impacted the research landscape, but changed it by making it easier for scientists to develop their ideas and to collaborate with industry. IAAs have helped speed up the contribution that scientists make towards new innovation, successful businesses and the economic returns that benefit UK PLC and in 2016-17 we have captured significant outcomes from this investment.

#### **Maths makes sense of social media**

New mathematical modelling and data analysis tools developed at the University of Strathclyde have been behind award-winning adverts. Bloom, a Leeds based digital marketing agency, approached the university after seeing the research and recognising that it could use mathematical algorithms to develop marketing strategies for clients and predict the likely return on investment from a particular strategy. With funding from Innovate UK it began working with the university and developed an analytics tool called Whisper. Whisper examines social media networks to find influencers, helping to pinpoint where spending will have the most benefit. The collaboration continued with funding through an EPSRC Impact Acceleration Account. The company has clients ranging from Virgin Atlantic to the Samaritans who have been attracted by the use of Whisper to deliver insights about their data.

#### **Investing in state-of-the-art infrastructure**

EPSRC recognise that the UK's international stature in research is founded on and can only be sustained by investment in internationally competitive scientific infrastructure including world class laboratories.

Our £21m investment in 2016-17 for strategic equipment, aimed at providing researchers with access to cutting edge equipment in priority research areas, has funded equipment across 21 institutions. The underpinning multi-user equipment call invested £20m which will support a wider portfolio of EPSRC funded research. In addition, approximately £5m of research equipment was funded on standard EPSRC grants across all themes in 2016-17. These investments in scientific infrastructure are made with a view to keep the UK at the forefront of discovery and innovation and to ensure that the equipment and infrastructure remains easily accessible to the scientific community.

#### **High Performance Computing Centres**

Six High Performance Computing (HPC) centres that will give academics and industry access to powerful computers to support research in engineering and the physical sciences have been funded through a £20m EPSRC investment. These centres are important as they will enable new discoveries, drive innovation and allow new insights into today's scientific challenges. Additionally they also address an existing gulf in capability between local university systems and the UK National Supercomputing Service (ARCHER). Many universities are involved in the six new centres, and these will give more researchers easy access to High Performance Computing.

ARCHER continues to demonstrate the ongoing essential need for internationally-leading HPC provision in the UK. Every 6 months, the service estimates about £1.7m of added value in scientific throughput by measuring the improvements to software codes run on ARCHER. In addition, over a third of the machine is used for massive jobs that could not be run elsewhere; for example, on local university clusters. The system runs at full capacity 24 hours a day, seven days a week, but even then, it has managed to save about £200,000 a year in electricity charges by ingenious use of power and cooling technology.

# Overview

## Investing in international collaborations

A new lead agency agreement between The United States National Science Foundation (NSF) Directorate for Engineering (ENG), Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) and the EPSRC Engineering Theme has been initiated, under the NSF-RCUK Memorandum of Understanding. The agreement enables submission of joint UK-US research proposals to either EPSRC or NSF, depending on the balance of the proposed programme of work. A further lead agency agreement with Science Foundation Ireland has also recently been signed and is now live.

A programme of research between UK and China is underway with an ambition to develop the next generation of technologies for the safe, secure, cheap and efficient provision of offshore renewable energy. Up to £4M is available through the Newton Fund to support UK researchers for up to five awards, matched with National Natural Science Foundation of China (NSFC) funding of up to 3M RMB per project to support Chinese researchers. A further funding activity on sustainable deltas is also underway with NSFC and the Netherlands Organisation for Scientific Research (NWO).

A £10m virtual joint centre between the UK and India that will address the challenge of integrating intermittent, renewable energy sources with energy storage for both on-grid and off-grid/isolated communities in India and UK has been announced through the Newton-Bhabha Fund, in partnership with the Indian Department of Science and Technology (DST). The programme involves 10 UK Universities and 17 institutions in India. A further £7.4m Newton joint programme on Energy Demand Reduction in the Built Environment is also underway with DST.

EPSRC's 2016-17 Global Challenge Research Fund (GCRF) allocation (£10m) has been awarded through institutional sponsorship grants to 35 universities to develop areas of research which can realise the potential of the GCRF. EPSRC is making a further £25m available for around 20 projects through a call to tackle global development challenges through engineering and digital technology research. The call has attracted significant interest resulting in a high number of excellent proposals for funding. A further GCRF funding activity on diagnostics, prosthetics and orthotics is also underway.

The aim of EPSRC's international investments are not only to enhance the UK's competitiveness but also to make sure that the benefits of scientific advancement benefit developing countries which helps the UK meet its commitments towards Official Development Assistance (ODA) and the United Nations' (UN) sustainable development goals<sup>10</sup>.

## Realising the benefits of government investment in grand challenges

Benefits from investment in Quantum Hubs

In 2014 we invested in four quantum hubs to make the UK the leader in quantum technologies (QT) development and commercialisation. Between them, the hubs in 2016 have reported over 100 peer reviewed publications, secured over £15m of additional funding and been involved in significant patent and innovation activities.

<sup>10</sup> <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

### **First practical blueprint for universal quantum computer**

Researchers led by a scientist at the University of Sussex have revealed the first practical blueprint for a universal quantum computer that could have a revolutionary impact on technology and the wider world. The team's work has been supported by the Engineering and Physical Sciences Research Council (EPSRC) through the UK Quantum Technology Hub on Networked Quantum Information Technologies, and the Government-backed UK National Quantum Technology Programme. The blueprint features connections created by electric fields that allow charged atoms (ions) to be transported from one module to another, allowing connection speeds between individual quantum computing modules that are 100,000 times faster than current state-of-the-art fibre link technology. The team will now construct a prototype based on their blueprint, at the university. The new computer will, once built, have the potential for widespread applications, from creating new lifesaving medicines to solving previously unsolvable scientific problems and probing the outer reaches of space.

### **Alan Turing Institute**

Professor Andrew Blake, director of the EPSRC-supported Alan Turing Institute has received the 2016 BC Lovelace Medal, the top award in computing in the UK, awarded by BCS, The British Computing Society (The Chartered Institute for IT).

### **£100m investment for new research institute**

A major new £100m investment by the government into the development of an innovative multi-disciplinary science and technology research centre, Rosalind Franklin Institute (RFI) was announced in 2017. The institute will have a hub based at the Harwell campus. This is a new joint venture between some of the UK's leading universities and key partners in industry and research councils. The aim is to speed the application of cutting-edge physical science insights, methods and techniques to health and life sciences by providing an interface between research programmes at the forefront of these areas. Research at the RFI will initially be centred on five selected technology themes, focusing on next-generation imaging technologies - X-ray science, correlated imaging (combining X-ray, electron and light microscopy), imaging by sound and light, and biological mass spectrometry - and on new chemical methods and strategies for drug discovery.

### **Partnership with Universities, business and innovation funders**

EPSRC continues to engage with stakeholders, (Universities, businesses, charities, innovation funders and others) in the knowledge and innovation ecosystem to maximise impact and deliver benefits for the scientific community as well as contribute to national prosperity.

We have continued the positive engagement with our strategic partner Universities which has enabled us to respond to the changing policy landscape and embed our new delivery plan. Examples of recent activities include:

- The co-ordination of 27 strategic visits from the Executive Leadership team, Themes and University contacts to launch the Delivery plan and embed the new outcomes framework
- Investment of Institutional Sponsorship awards to catalyse bottom up, investigator led activity in our four prosperity outcome areas, work with partners to cultivate and deepen relationships which contribute to future leverage and improving Equality, Diversity and Inclusion in the Engineering and Physical Sciences.
- Continued two-way engagement throughout the refresh of the research area rationales as part of our Balancing Capability strategy, including the Call for Evidence where partner universities made up 50% of the universities that engaged in this activity.

## Overview

### Prosperity Partnerships

EPSRC is making £20m available through Prosperity Partnerships to support existing, strategic, research-based collaborations between business and universities. Business and academic partners were required to match the funded value of the proposal with a cash contribution. 38 companies spanning a range of industrial sectors submitted Expressions of Interest, with 21 different academic partners. 15 proposals have been invited through to the full proposal stage; together these proposals promise £43.4m of leverage against our portfolio. Funding decisions and announcement of successful partnerships will be made May-June 2017.

As a key player in the innovation ecosystem EPSRC strives to maintain a healthy pipeline of research from discovery through to innovation. We have a strong partnership with Innovate UK to enable our research to generate impact through the right support systems. In 2016-17 we have spent over £24m to support Innovate UK activities, for example in Energy, Industrial Biotechnology and Quantum Technologies.

Our collaboration with businesses, charities and other user organisations creates opportunities for ideas to flourish and maximises impact. Our investments are very well placed to deliver for the Government's current industrial strategy. As an example below are a few areas relevant to the industrial strategy, that we have invested in, that have the potential to spur economic growth and innovation highlighting the leverage from partnerships that our investments have generated for the period 2016-17.

Some areas relevant to Industrial strategy and for growth and prosperity	EPSRC investment in 2016-17	Leverage from partners 2016-17
Bioeconomy	£34m	£18m
Challenge and creative business	£53m	£7m
ElectroChemistry and batteries	£445m	£53m
Healthcare	£86m	£20m
Integrated and Sustainable Cities	£19m	£4m
Manufacturing processes and materials	£225m	£106m
New energy technologies	£400m	£32m
Robotics automation and artificial intelligence	£15m	£3m
Space and Satellite Technologies	£5m	-
TransDigitalTech, SuperComp, AdvModelling, 5G	£166m	£40m



### Our top 15 partner organisation by leverage value) for 2016-17

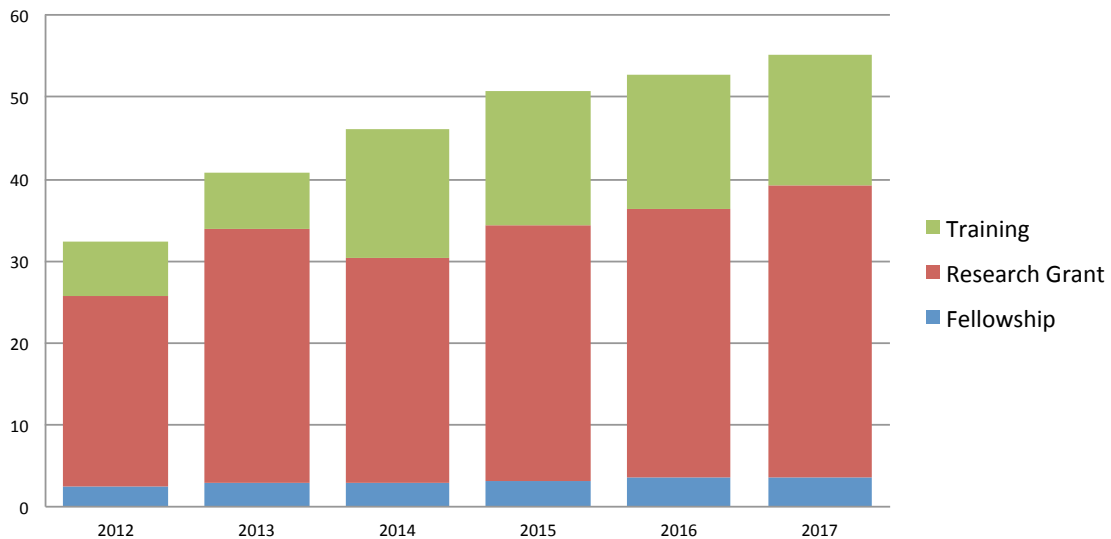
Partner organisation	Leverage value 2016-17
CERN	£27m
Wellcome Trust	£13m
Cancer Research UK	£11m
GlaxoSmithKline plc (GSK)	£7m
Rolls-Royce plc	£5m
AstraZeneca	£4m
Defence Science and Technology Laboratory (DSTL)	£4m
IQE plc	£4m
Bayer Pharma AG	£4m
Renishaw	£3m
National Composites Centre	£3m
National Nuclear Laboratory	£3m
National Physical Laboratory	£3m
Department of Energy and Climate Change	£3m
Ministry of Defence (MOD)	£3m

# Performance Analysis

## Performance against key performance indicators

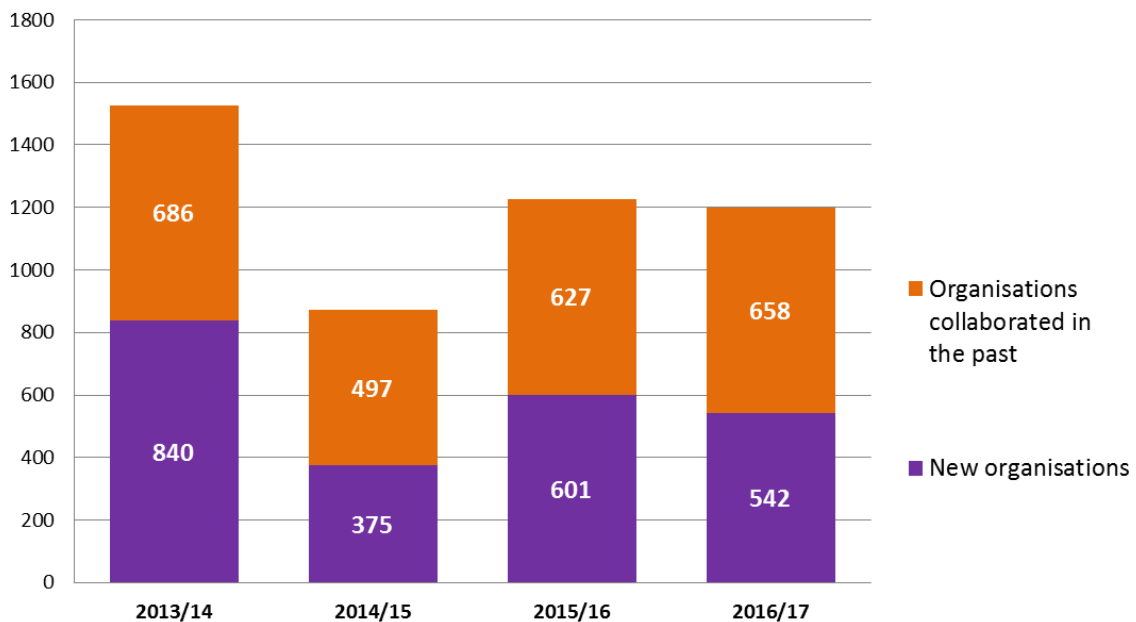
EPSRC's performance is measured against its objectives using a number of key performance indicators (KPIs) which help the EPSRC Council to monitor progress. Some of these are highlighted below.

Proportion of portfolio that is collaborative with user (non-academic partners) organisation.



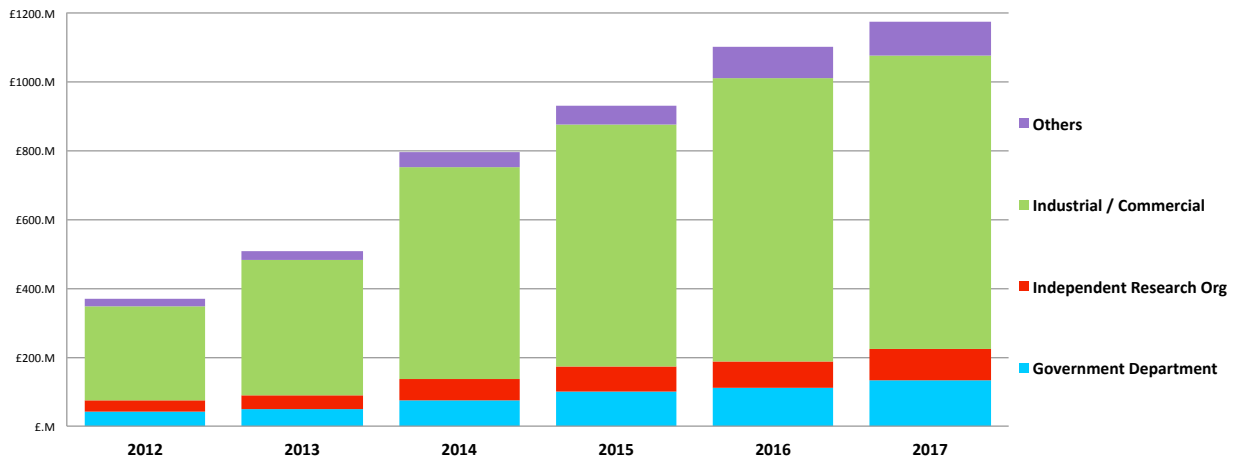
Over 55 % of our portfolio on 1 April 2017 was collaborative with user organisations, including businesses, industry, government departments, charitable organisations, civic and local bodies, healthcare providers, professional bodies and many more.

Collaborating user (non-academic) organisations on grants awarded by year.



In 2016- 17, we have collaborated with 542 new organisations; these are organisations we have not collaborated with on any awarded EPSRC grant in the last 10 years.

Leverage on portfolio from user organisations - Leverage of total portfolio on 1 April each year.

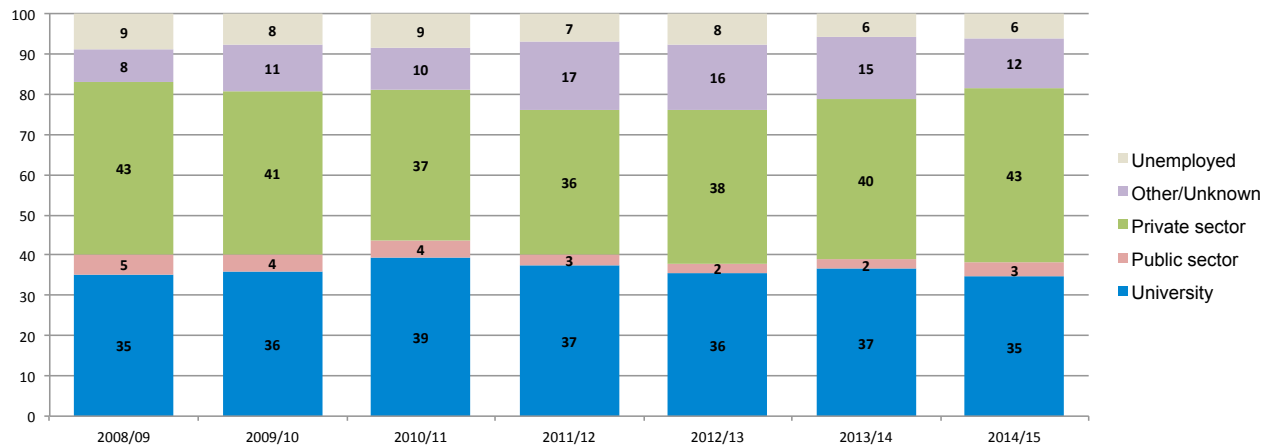


\*Others include Local and Regional Government, Professional Institution, Public Research Organisation, Trade Associations and RTOs, Hospital / NHS trust, Charitable Organisation, Civic Organisations and others

**As on 1st April 2017, the total leverage on our portfolio from user organisations is around £1.2 bn.**

### Destination of EPSRC funded students

Over 2,500 PhDs graduate each year having received EPSRC support. The chart below shows the destinations of students over the last seven years..



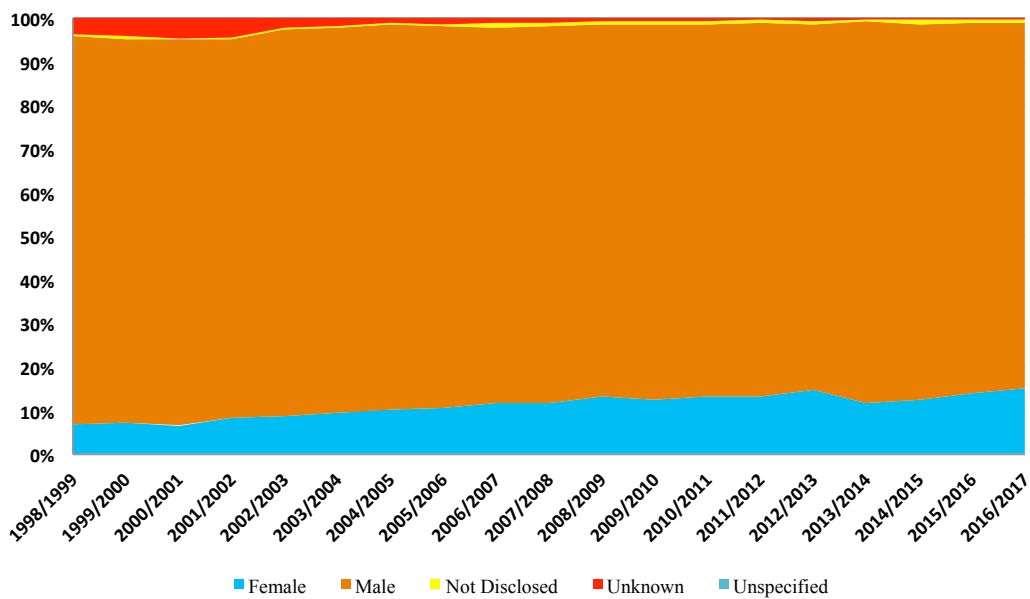
This chart is based on data from the Destinations of Leavers from Higher Education (DLHE) survey which asks leavers from higher education what they are doing six months after graduation. About three quarters of leavers complete the survey.

# Performance Analysis

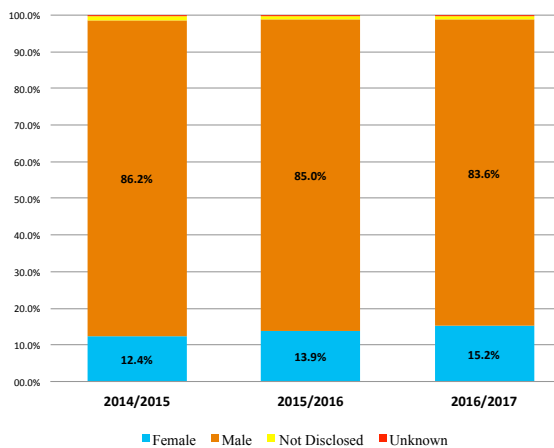
Over 43% of our students gained employment in the private sector. Up 3% from last year.

## Gender of awarded investigators

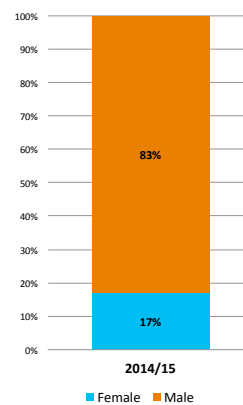
Trend for gender of awarded investigators by financial year of decision 1998-99 - 2016-17



Gender of awarded investigators



Gender of Academic population - EPSRC cost codes (HESA 2014-15)



In 2016-17 over 15% of awarded investigators on research grants were female. To understand how representative the pool of applicants to EPSRC was of the broader academic community, we have looked at the diversity profile of the wider academic community<sup>11</sup>. The HESA chart above shows indicative diversity data using HESA 2014-15 return for EPSRC cost codes.

<sup>11</sup> EPSRC has identified HESA cost centres that closely match population of researchers who might apply to the Council. The EPSRC individuals are from the following cost centres: Chemistry, 'General engineering, Chemical engineering', 'Mineral, metallurgy & materials engineering', 'Civil engineering', 'Electrical, electronic & computer engineering' and 'Mechanical, aero & production engineering', 'Information technology & systems sciences & computer software engineering', 'Mathematics' and 'Physics'

# Performance Analysis

## Financial Performance

EPSRC's main source of financing is through Grant-in-Aid from BEIS, which is based on the annual DEL allocation (outlined on page 29). Income contributions are derived from arrangements with third parties within and external to central government.

Grant-in-Aid received from BEIS for 2016-17 was £930.2m compared to £895.4m for 2015-16. This represents an increase of 3.9%. The increase is as a result of new funding for Global Challenges Research Fund and specific projects such as UKCRIC. EPSRC administration funding increased as it now receives a specific allocation for the costs of the RCUK Executive Directorate (which it hosts on behalf of all Research Councils).

The accounts for the year ended 31st March 2017 recorded net expenditure of £940.1m compared with £907.4m for 2015-16, which is an overall increase of 3.6%. The increase is consistent with the overall increase in funding from BEIS.

Research and Development expenditure as at the end of March 2017 was £932.8m, compared with the 2015-16 re-represented figure of £902.4m. The increase of 3.4% is consistent with the increase of funding for new research activities.

Overall, 96% of the 2016-17 financial year expenditure related to Research and Development which highlights EPSRC commitment to maximising funding in these areas..

Funding for the administration costs of EPSRC amounted to 1.4% of allocation.

## Financial Position

EPSRC's non-current assets primarily consist of the investment in the supercomputer ARCHER and a share in the land and office premises held by Research Councils in Swindon. At the end of March 2017, the carrying value of non-current assets was £12.1m (31 March 2016 £21.2m). The majority of the reduction consisted of the annual depreciation and amortisation charges, which are outlined within the financial statements (pages 69 to 71).

EPSRC's current assets as at 31 March 2017 were £44.2m, while the current liabilities were £49.4m. The current liabilities consist mainly of grants where EPSRC is awaiting final expenditure statements or grants that have just commenced and are awaiting their first payment.

EPSRC receives a budget allocation from BEIS to deliver its programme and administration activities, the costs of which are met through the Grant-in-Aid it receives. For the 2016-17 financial year EPSRC fully allocated its £930m budget but due to the timing of payments only needed to draw-down £925m of Grant-in-Aid.

## Performance Analysis

<b>Outturn</b>	<b>Resource</b>	<b>Capital</b>	<b>Total</b>
Allocation	831,058	109,170	940,228
Outturn	830,078	107,817	937,895
<b>In year underspend</b>	<b>980</b>	<b>1,353</b>	<b>2,333</b>

### Reconciliation of Net Expenditure Between Allocation, Outturn and Accounts

<b>BEIS Allocation:</b>			
Administration RDEL Near Cash			8,854
RCUK Administration RDEL Near Cash			4,362
Programme RDEL Near Cash			807,854
Capital DEL			109,170
Programme RDEL Non Cash			9,788
Administration RDEL Non Cash			200
<b>Total</b>			<b>940,228</b>
Administration Expenditure per Management Accounts			12,629
Programmes Expenditure per Management Accounts			807,323
Invest to Save - Capital			86
Capital Expenditure (Capex) Per Management Accounts			107,817
Depreciation Expenditure per Management Accounts			9,806
Administration Non Cash per Management Accounts			234
<b>Expenditure Per Management Accounts</b>			<b>937,895</b>
Capital additions			(86)
Notional Service Charge			2,521
Movement between Reserves per Statement of Changes in Taxpayer Equity			(234)
Net Expenditure			940,096
Movement of Net (gain)/loss on revaluation of non-current assets			(589)
<b>Total Comprehensive Net Expenditure for the year</b>			<b>939,507</b>

## Long-term Expenditure Trends

The graphs highlighted in this section provide a visual representation of the critical areas that drive the performance of the EPSRC. With Grant-in-Aid being determined by our sponsor department it is vital funding is utilised in the most effective way to ensure EPSRC's medium and long term objectives are continually met.

Constraints in the administrative allocation element over the last few years have meant that it has become increasingly important to deliver high quality back-office services in the most efficient way possible. EPSRC efficient use of resources resulted in administration spend accounting for 1.4% of its total allocation in 2016-17.

The allocation from BEIS is made up of the four components shown in the graph on page 30.

The 2016-17 programme allocation shows an increase of 4% compared to 2015-16 due to the costs of new activities such as GCRF. For 2016-17 the ratio of resource to capital allocation is 88:12 (for 2015-16 85:15).

The allocation for administration has increased slightly this year from 1% in 2015-16 to 1.4% as EPSRC now receives a specific allocation for the costs of the RCUK Executive Directorate, £4,362k, which it hosts on behalf of all Research Councils.

Total research and post graduate spend has increased by 3% reflecting the additional Grant-in-Aid received to fund new activities.

Total staff costs have increased from 2015-16 by 12% which is mainly as a result of the growth of the RCUK Executive Directorate. RCUK is delivering a greater volume of cross-council activity and now hosts the grants processing team (which transferred from UK SBS in 2016-17).

Purchase of goods and services increased by 9% when compared with the re-represented 2015-16 figure. The increase is mainly due to the growth in costs of the RCUK Executive Directorate who have been delivering an increased volume of cross-council activity.

Total operating income for 2016-17 was £27,962k compared with £28,193k (re-represented figure at end of 2015-16 FY), a decrease of 1%.

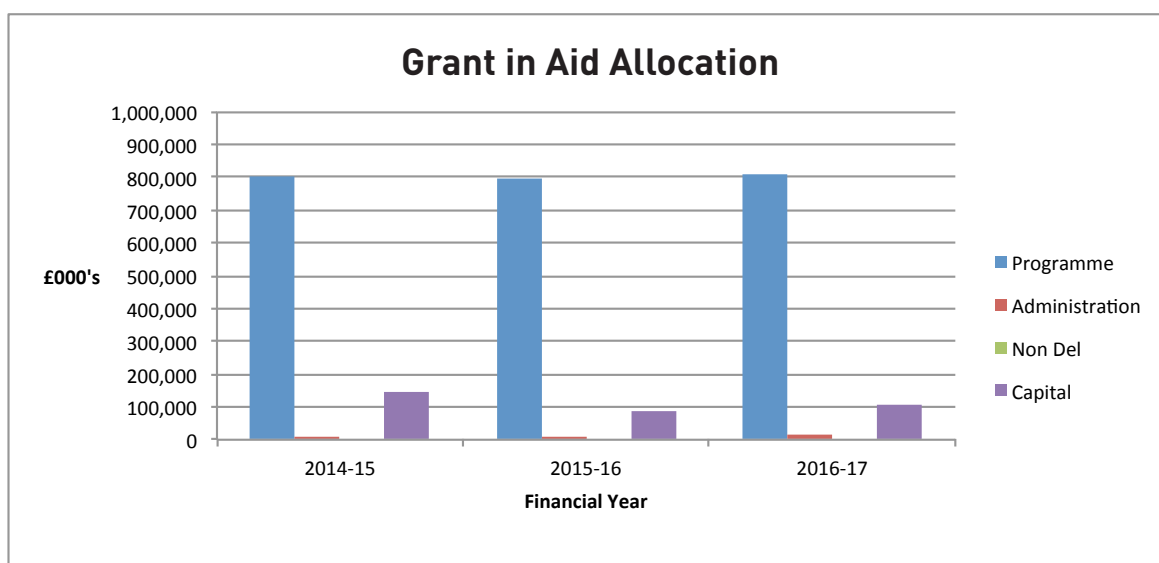
## EPSRC Comprehensive Spending Review Allocations

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
	£'000	£'000	£'000	£'000	£'000	£'000
Programme Resource	759,720	75,8150	781,400	783,822	791,770	807,854
Administration Resource	16,354	14,400	7,747	10,919	10,919	13,216
<b>Sub Total Resource</b>	<b>776,074</b>	<b>772,550</b>	<b>789,147</b>	<b>794,741</b>	<b>802,689</b>	<b>821,070</b>
Programme Non-Cash	11,000	9,200	8,823	7,672	7,672	9,787
Administration Non-Cash	1,105	300	323	1,191	300	200
<b>Sub Total Non-Cash</b>	<b>12,105</b>	<b>9,500</b>	<b>9,146</b>	<b>8,863</b>	<b>7,972</b>	<b>9,987</b>
<b>Total Resource DEL</b>	<b>788,179</b>	<b>782,050</b>	<b>798,293</b>	<b>803,604</b>	<b>810,661</b>	<b>831,057</b>
Capital Allocation	66,000	65,000	150,620	118,400	144,400	109,170
<b>Total Capital DEL</b>	<b>66,000</b>	<b>65,000</b>	<b>150,620</b>	<b>118,400</b>	<b>144,400</b>	<b>109,170</b>
<b>Total EPSRC Del</b>	<b>854,179</b>	<b>847,050</b>	<b>948,913</b>	<b>922,004</b>	<b>955,061</b>	<b>940,227</b>

# Performance Analysis

## EPSRC Expenditure

	2011-12 £'000	2012-13 £'000	2013-14 £'000	2014-15 £'000	2015-16 £'000	2016-17 £'000
Programme Resource	751,967	753,435	750,830	782,485	799,137	807,323
Administration Resource	13,565	13,343	10,673	10,518	9,082	12,715
<b>Sub Total Resource</b>	<b>765,532</b>	<b>766,778</b>	<b>761,503</b>	<b>793,003</b>	<b>808,219</b>	<b>820,038</b>
Programme Non-Cash	10,466	10,104	15,293	7,119	9,421	9,806
Administration Non-Cash	307	205	354	331	244	243
<b>Sub Total Non-Cash</b>	<b>10,773</b>	<b>10,309</b>	<b>15,647</b>	<b>7,450</b>	<b>9,665</b>	<b>10,049</b>
<b>Total Resource DEL</b>	<b>776,305</b>	<b>777,087</b>	<b>777,150</b>	<b>800,453</b>	<b>817,884</b>	<b>830,087</b>
Capital Allocation	39,860	59,273	126,584	144,400	86,700	107,817
<b>Total Capital DEL</b>	<b>39,860</b>	<b>59,273</b>	<b>126,584</b>	<b>144,400</b>	<b>86,700</b>	<b>107,817</b>
<b>Total EPSRC Del</b>	<b>816,165</b>	<b>836,360</b>	<b>903,734</b>	<b>944,853</b>	<b>904,584</b>	<b>937,904</b>

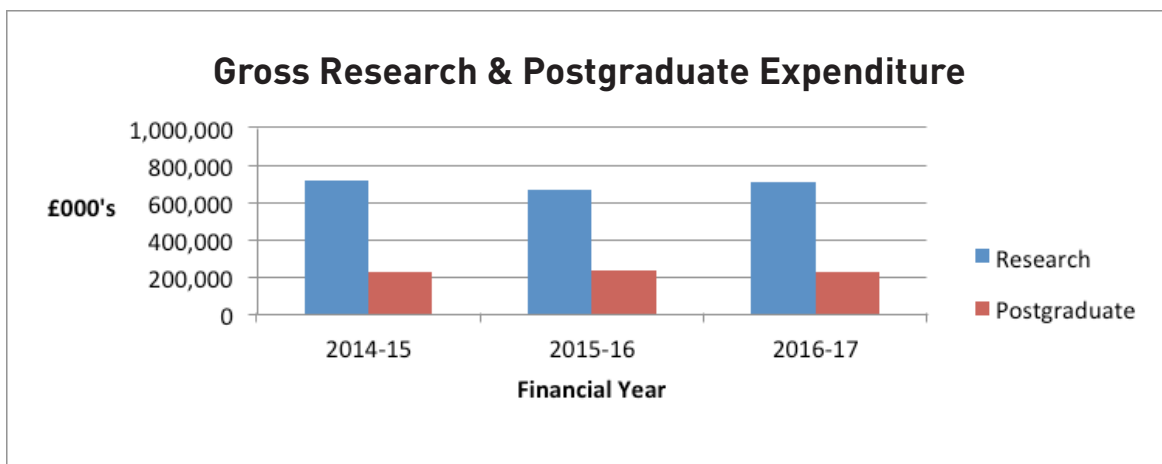


The allocation from BEIS is made up of the four components as in the graph above.

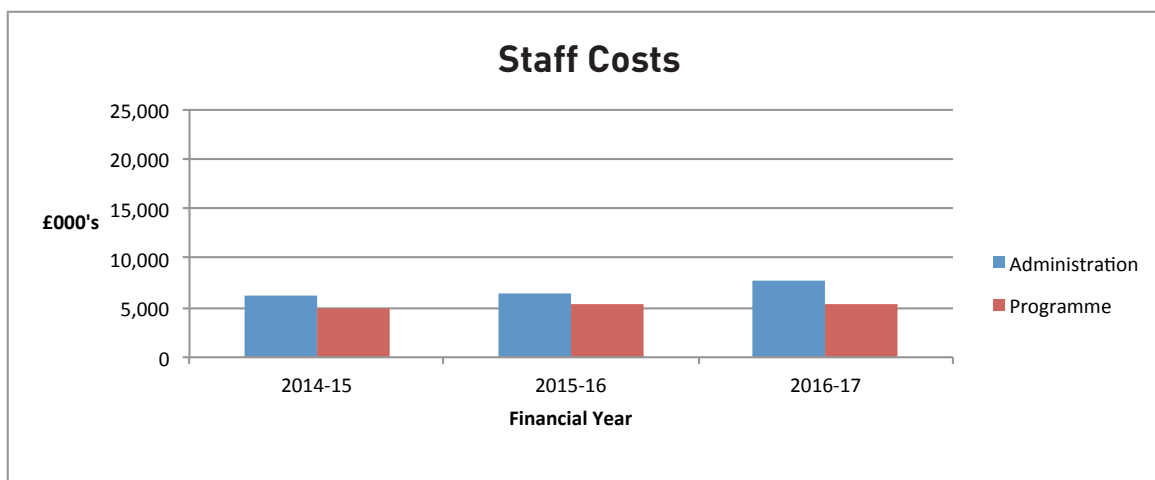
The 2016-17 DEL allocation shows an increase of 4% compared to 2015-16 mainly due to the capital element. For 2016-17 the allocation of programme to capital is 87% and 12% (for 2015-16 89% and 10%, respectively).

The allocation for administration has increased slightly this year from 1% in 2015-16 to 1.4% due to separate admin allocation for RCUK.



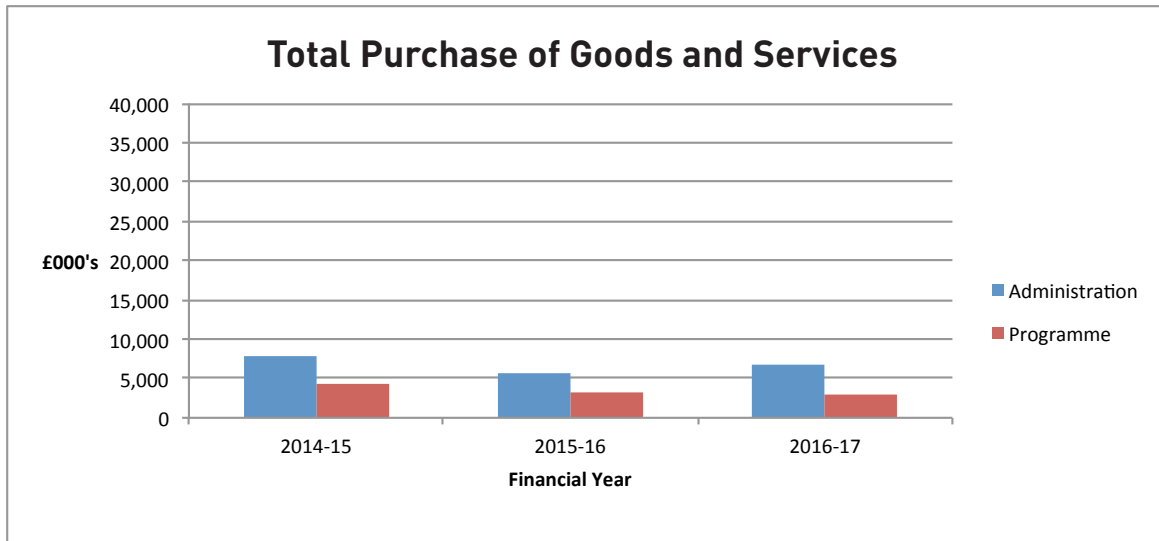


The total research and post graduate spend has increased by 3% reflecting the importance to EPSRC in investing in world class research. However, the post graduate expenditure reduced slightly as a result of some of the Doctoral Training Grant coming to an end.



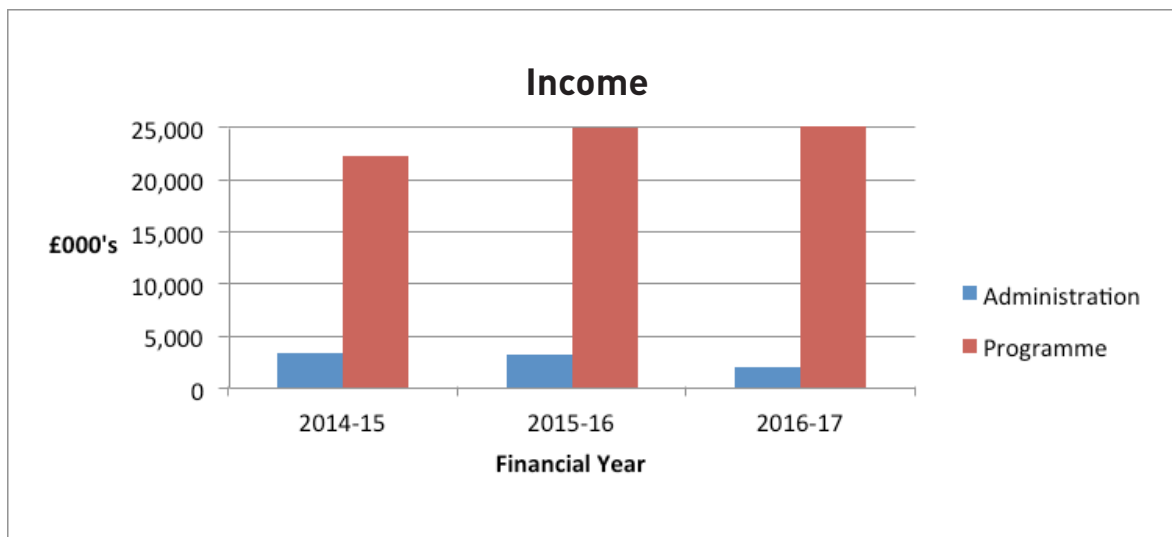
Total staff costs have increased from 2015-16 by 12.4% which is mainly as a result of the growth of the RCUK Executive Directorate. RCUK is delivering a greater volume of cross-council activity and now hosts the grants processing team (which transferred from UK SBS in 2016-17).

## Performance Analysis



The purchase of goods and services is relates to non-staff expenditure without depreciation. The figure is re-represented for 2015-16 in the primary statements and disclosure notes.

There was an overall increase of 9% when compared with re-represented 2015-16 figure. The increase is mainly as a result new activities within the RCUK Directorate.



The total operating income at end of March 2017 is £27,962k compared with £28,193k (re-represented figure at end of 2015-16), this represents a decrease of 1%, mainly down to RCUK admin incomes from the other research councils no longer being required. RCUK admin activities are now directly funded from BEIS.

### Creditor's Payment Policy

EPSRC observes HM Treasury Guidance and makes every effort to pay creditors within five days of receipt of invoice. Where this is not possible, EPSRC observes the CBI's Prompt Payers' Guide, and adheres to the Principles of the Prompt Payers' Code, endeavouring to ensure compliance with the agreed terms of payment of creditors' invoices and to pay them within 30 days of receipt of goods and services. During 2016-17 an average of 82% of payments were made within five days (2015-16 86%).

### Efficiency

As set out as part of the 2010 spending review settlement, the Research Councils have been implementing an efficiency programme to drive down the costs and overheads associated with research. The efficiency savings derived from this programme are being re-invested in research.

For further details on the RCUK Efficiency Programme please refer to the Governance Statement on page 39.

### UK SBS

UK SBS provides operational and transactional services to EPSRC covering Finance, Human resources, Information Systems, Procurement and Payroll. A review of UK SBS service delivery and the associated assurance issues are covered elsewhere within the Governance Statement.

### Environmental Policy

The Natural Environment Research Council (NERC) has developed a Cross Council Environment Policy, which is supported by EPSRC. EPSRC continues to work with other Research Councils and tenants of Polaris House, Swindon in ensuring the building's impact on the environment is as limited as possible. Currently 71.43% of waste is recycled – paper, metal, plastic, wood, food waste, old PCs and printers, mobile phones, toner cartridges, batteries and spectacles are all routinely recycled. An environmental plan for the site contains a number of objectives including ongoing waste reduction, introducing solar electricity and water heating, promoting and encouraging a site culture of recycle, reduce and reuse and enhancing the natural environment on site through introducing flora and fauna.

A Green Travel Plan for Polaris House has also been written and endorsed by RCUK's Executive Group to promote sustainable travel and reduce the environmental and social impacts of travel – both commuting and business travel. The plan outlines a number of short, medium and long term objectives, including promoting car share schemes and working with Swindon Borough Council to open park and ride schemes and improve bus facilities.

Due to its headcount and the floor area it occupies EPSRC is out of scope and has received an exemption from BEIS for reporting against the Greening Government and Sustainability requirements.



**Professor Philip Nelson**, Accounting Officer

22 June 2017

# Accountability Report

## Corporate Governance Report

### Directors' Report

EPSRC is an independent non-departmental public body of the Department for Business, Energy and Industrial Strategy (BEIS), established by Royal Charter. EPSRC's working relationship and lines of accountability with its sponsor department BEIS are defined through a Management Statement and Financial Memorandum, which are subject to periodic review.

EPSRC's Chief Executive, in the role of Accounting Officer, is accountable to the public via Parliament. Parliament monitors and influences EPSRC's work through its Select Committees and the Parliamentary Ombudsman.

### Council and Management Board

Council members remuneration for 2016-17 are listed in the Remuneration and Staff report (page53). The Chairman is Dr Paul Golby and the Chief Executive Officer is Professor Philip Nelson.

### COUNCIL MEMBERSHIP 2016-17

#### EPSRC Council Membership 01-04-2016 to 31-03-2017

<b>Chair of Council</b>	<b>Organisation</b>
Dr Paul Golby, CBE, FREng	EPSRC
<b>Chief Executive</b>	
Professor Philip Nelson, FREng, Accounting Officer	EPSRC
<b>Members</b>	
Mr Jack Boyer OBE	Entrepreneur
Professor Muffy Calder OBE, FREng, FRSE	University of Glasgow
Professor the Lord Ara Darzi OM, KBE, PC, FRS, FMedSci, FRCSI, FRCS, FRCSE, FRCPGlas, FACS, FRCP, FREng	Imperial College London
Ms Bonnie Dean OBE	Catalysts Inc
Professor Anthony Finkelstein CBE, FREng, MAE, FCGI	University College London
Professor Sir Richard Friend FRS, FREng	Cavendish Laboratory
Dr Paul Golby CBE, FREng	EPSRC, Chair
Professor Tim Jones	University of Birmingham
Professor Richard Jones FRS	University of Sheffield
Professor Philip Nelson FREng	EPSRC, Chief Executive Officer
Dr Helen Neville RSC	Procter & Gamble
Rt Hon Baroness Pauline Neville-Jones DCMG, PC	House of Lords
Professor Matthew Rosseinsky FRS	University of Liverpool
Professor Mark Smith MA, PhD, CPhys, FInstP	Lancaster University
Dr David Watson CBE, FREng	IBM UK Ltd
Professor Tim Whitley BSc, PhD	BT plc
<b>In attendance</b>	
BEIS Representative	BEIS

# Corporate Governance Report

## EPSRC AUDIT AND RISK ASSURANCE COMMITTEE

### MEMBERSHIP 2016-17

<b>Name</b>	<b>Organisation</b>
Mr Richard Dale	University of Newcastle
Ms Bonnie Dean OBE	Catalysts Inc
Professor Anthony Finkelstein CBE, FREng, MAE, FCGI	University College London
Mr Stephen Hawker CB	Independent
Professor Richard Jones FRS	University of Sheffield
Ms Jane Madeley MBA, ACA	University of Leeds
Mr Andy Nield	University of Bristol
Dr David Watson CBE, FREng (Chair of ARAC)	IBM UK Ltd

### In attendance:

NAO and AASG	
Professor Philip Nelson, FREng, Chief Executive Officer	EPSRC
Mr Andrew Lewis, Chief Operating Officer	EPSRC

# Corporate Governance Report

## EPSRC STRATEGIC ADVISORY NETWORK (SAN)

### MEMBERSHIP 2016-17

Name	Organisation
Professor Claire Adjiman FREng	Imperial College
Professor Paul Beasley	Siemens Technology
Professor David R Bull C.Eng, FIET, FIEEE	University of Bristol
Dr Alison Burdett CENG,SIMEE, FIET	Sensium Healthcare
Dr Jenny Cooper	Independent
Professor Rachel Cooper OBE	Lancaster University
Professor Sir Ian Diamond FRSE	University of Aberdeen
Professor Alicia El Haj	Keele University
Mr Peter Ellingworth	Association of British Healthcare Industries
Professor Alison Etheridge	University of Oxford
Dr Paul Gosling BSc, DPhil FInsP CEng CPhys	Thales UK Ltd
Professor Patrick Grant FREng	University of Oxford
Mr Anthony Harper BSc, Ceng, FIMechE	Jaguar and Land Rover
Professor Karen Holford CEng FIMechE FICE CPhys FInstP FLSW	Cardiff University
Professor Alan Hughes	University of Cambridge
Dr David Jakubovic	Procter and Gamble Technical Centres Ltd
Mr Jonathan Legh-Smith	BT Group plc
Professor Chris Linton	Loughborough University
Professor Allan Matthews FREng BSc PhD CEng FIMMM FIMechE FIET FIMF	University of Manchester
Professor Francesca Medda	University College London
Professor Tom Melham FRSE	University of Oxford
Professor Rachel O'Reilly FRSC	University of Warwick
Professor Lydia Plowman FAcSS	University of Edinburgh
Professor Mary Ryan FREng, FIMMM, FICorr	Imperial College
Professor Ifor Samuel FRSE	University of St Andrews
Dr Richard Seabrook PhD MBA	Wellcome Trust
Mr Philip Sharman	Independent
Helen Sharp PhD PGCTLHE CEng CIP MBCS FHEA	Open University
Professor Sarah Sharples BSc(hons), MSc, PhD, PGCAP, FIEHF	University of Nottingham
Professor Mark Smith PhD MBA	Lancaster University
Professor Tim Softley MA, PhD, FRSC, FInstP	University of Birmingham
Professor Nigel Titchener-Hooker Ceng FIMechE FREng	University College London
Dr Ceri Williams BSc, PhD	University of Leeds

# Corporate Governance Report

## Conflict of Interest

The potential for conflicts of interest for EPSRC are fully disclosed in Note 13 to the accounts on page 85. Full registers of interest for EPSRC Council, Strategic Advisory Network and Audit and Risk Assurance Committee can be found on the EPSRC website ([www.epsrc.ac.uk/about/governance](http://www.epsrc.ac.uk/about/governance))

## Directors Review

We as management have ensured that the National Audit Office team have been given all that they need in order to complete their audit.

## Personal Data related Incidents

There were no protected personal data related incidents formally reported to Information Commissioner's Office in 2016-17. The table below outlines 12 incidents that were not deemed to be significant.

Please note that EPSRC data security policy and controls are disclosed in the Governance Statement on page 39.

## Summary of other protected data related incidents in 2016-17

Category	Nature of Incident	Total
I	Loss of inadequately protected electronic equipment, devices or paper documents from secured Government premises	-
II	Loss of inadequately protected electronic equipment, devices or paper documents	2
III	Insecure disposal of inadequately protected electronic equipment, devices or paper documents from outside Government premises	-
IV	Unauthorised disclosure	-
V	Other	10

## Freedom of Information

EPSRC is subject to the Freedom of Information Act. During 2016-17 EPSRC provided information in response to 25 requests.

# Corporate Governance Report

## Statement of Accounting Officer's Responsibility

Under Section 2(2) of the Science and Technology Act 1965, the Secretary of State with the consent of HM Treasury has directed EPSRC to prepare for each financial year a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of EPSRC and its net expenditure, changes in taxpayers' equity, and cash flows for the financial year. In preparing the Accounts, the Accounting Officer is required to comply with the requirements of the Government Financial Reporting Manual ([https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/577272/2016-17\\_Government\\_Financial\\_Reporting\\_Manual.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/577272/2016-17_Government_Financial_Reporting_Manual.pdf)) and in particular to:

- observe the Accounts Direction issued by the Secretary of State including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis
- make judgments and estimates on a reasonable basis
- state whether applicable accounting standards as set out in the Government Financial Reporting Manual have been followed, and disclose and explain any material departures in the financial statements; and
- prepare the financial statements on a going concern basis.

The Department for Business, Energy and Industrial Strategy has appointed the Chief Executive as Accounting Officer of EPSRC. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding EPSRC assets, are set out in the NDPB Accounting Officers' Memorandum issued by HM Treasury and published in 'Managing Public Money'.

As far as the Accounting Officer is aware, there is no relevant audit information of which the entity's auditors are unaware. The Accounting Officer has taken all the steps that ought to have been taken to be made aware of any relevant audit information and to establish that the entity's auditors are aware of that information.

The Annual Report and Accounts as a whole is fair, balanced and understandable and the Accounting Officer takes personal responsibility for the Annual Report and Accounts and the judgments required for determining that it is fair, balanced and understandable.



# Corporate Governance Report

## Governance Statement

### Headline

This Governance Statement sets out my assessment of EPSRC's potential vulnerabilities and capability to deal with the challenges facing us in our operating environment.

### Scope of Responsibility

As Accounting Officer, I have personal responsibility for maintaining a sound system of governance and internal control, which supports the achievement of EPSRC's policies, aims and objectives. I also safeguard the public funds and EPSRC assets for which I am responsible, ensuring they are properly accounted for and used economically, efficiently and effectively, in accordance with 'Managing Public Money' and the requirements set out in the Management Statement and Financial Memorandum agreed between EPSRC and its sponsoring department, the Department for Business, Energy and Industrial Strategy (BEIS). I am supported in my role as Accounting Officer by a governance framework, which includes the Council, its Committees and Senior Management.

In forming my assessment I have examined the following sources of information:

- all Council and committee meeting minutes;
- the work of internal audit;
- work undertaken to evaluate funding assurance on research investments;
- the assessments of individual directors as covered in their stewardship reports.

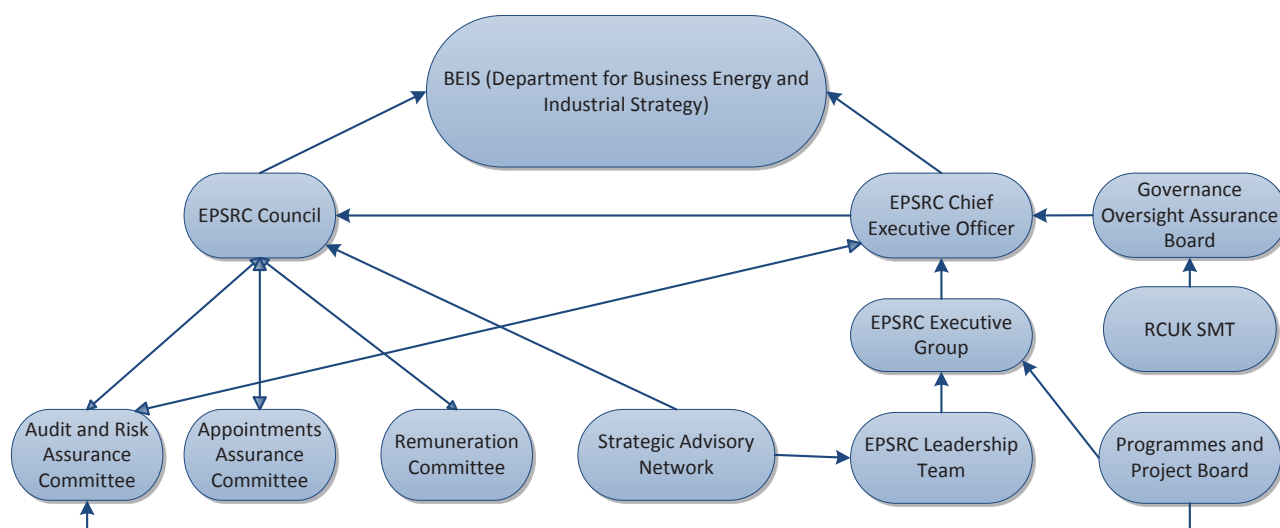
### Governance Framework

EPSRC is governed by its Council which establishes and agrees the overall corporate strategy, key strategic objectives and deliverables of EPSRC, as set out in its Strategic and Delivery Plans. The responsibility for implementing the decisions of Council is delegated to me as the Chief Executive and Accounting Officer. The Council also reviews regular financial reports on the management and performance of EPSRC ensuring that appropriate action is taken to address any concerns identified, thus ensuring the good financial management of EPSRC. The Council also monitors the overall EPSRC risk profile as well as individual risks carrying a high degree of threat.

In carrying out this work the Council is advised by the Audit and Risk Assurance Committee (ARAC) and Appointments Assurance Committee (AAC). The Council sets the vision and strategic direction for EPSRC. The responsibility for the delivery of key strategy is delegated to me as the Chief Executive.

# Corporate Governance Report

A diagram of the EPSRC's governance structure follows with further details found on [www.epsrc.ac.uk](http://www.epsrc.ac.uk).



In 2016-17 the Council met five times and discussion, among other matters, included:

- Delivery Planning;
- The next major e-infrastructure investment;
- Funding for the Culham Centre for Fusion Energy;
- Higher Education and Research Bill and transition to UK Research and Innovation (UKRI);
- Balancing Capability;
- The Global Challenges Research Fund;
- Industrial Strategy Challenge Fund.

Council members are recruited through advertisements in the national press, with oversight provided by the Office of the Commissioner for Public Appointments (OCPA). Final appointments are subject to Ministerial approval. Members of Council and EPSRC's committees are listed on pages 34-36.

A review of Council's effectiveness covering 2015-16 took place in April 2016 and was considered by Council in May 2016. Due to this review and the impending transition to UKRI, we have not undertaken a formal review covering 2016-17. It is anticipated that as part of the transition to UKRI, lessons learned and best practice from the current model will be given due consideration in formulating and establishing a new Council.

ARAC, which includes independent members in addition to Council members, met five times during the year. Members are appointed by Council.

The Committee provides assurance to Council and to me, as Accounting Officer, by reviewing the adequacy and effectiveness of EPSRC's framework of governance, risk management and controls; reviewing the annual accounts, and accounting policies, on behalf of Council and overseeing the outcomes of work by the internal and external auditors. The Committee also supports discussion at Council through updates and briefings from the Committee Chair who is also a Council member. The effectiveness of the Committee was discussed at the April meeting where it was agreed that it was working effectively. Members also took part in a Research Council organised cross council Audit Committee training day.

In 2016-17 a Programmes and Project board was created to provide strategic advice, assurance on the management of project governance arrangements for new institutes and other significant facilities within the

# Corporate Governance Report

EPSRC portfolio. The board reports to the Chief Operating Officer and ARAC receive updates at each meeting. The board is chaired by the EPSRC Director of Programme Delivery and membership includes an independent member of ARAC. The Board met 4 times during 2016-17 and the projects under current review are shown below. All governance and process issues in respect to these projects have been addressed with all projects proceeding according to plan:

- Rosalind Franklin Institute;
- Flagship Nuclear Magnetic Resonance (NMR) Facility;
- Warwick Advanced Steel Research Hub;
- ARCHER;
- Sir Henry Royce Institute;
- UK Collaboration for Research in Infrastructure & Cities;
- Cavendish Laboratory;
- The Alan Turing Institute.

The attendance of members at Council and the ARAC, for which they were eligible to attend, can be found in the following table.

Name	Attendance at Council	Attendance at Audit and Risk Assurance Committee
Mr Jack Boyer	5 out of 5	
Professor Muffy Calder	5 out of 5	
Mr Richard Dale		4 out of 5
Professor Lord Ara Darzi	3 out of 5	
Ms Bonnie Dean	5 out of 5	5 out of 5
Professor Anthony Finkelstein	5 out of 5	3 out of 4
Professor Sir Richard Friend	4 out of 5	
Professor Vernon Gibson	0 out of 2	
Dr Paul Golby (Chair of Council)	5 out of 5	
Mr Stephen Hawker		5 out of 5
Professor Richard Jones	5 out of 5	4 out of 5
Professor Tim Jones	5 out of 5	
Ms Jane Madeley		4 out of 5
Professor Philip Nelson	5 out of 5	5 out of 5
Dr Helen Neville	5 out of 5	
Rt Hon Baroness Pauline Neville-Jones	5 out of 5	
Mr Andy Nield		2 out of 2
Professor Matthew Rosseinsky	5 out of 5	
Professor Mark E. Smith	1 out of 1	
Dr David Watson (Chair of ARAC)	4 out of 5	4 out of 5
Professor Tim Whitley	1 out of 1	

# Corporate Governance Report

EPSRC Leadership Team (ELT) is the Executive body for EPSRC and comprises myself as Chief Executive, Directors and Associate Directors. It normally meets weekly and its governance responsibilities are to manage EPSRC operations and finances in line with EPSRC's 2016-17 delivery plan, as well as monitoring associated risks.

The Remuneration Committee is responsible for advising the Council on matters relating to the remuneration of Directors and other pay-related matters for senior staff. BEIS determine the salary for my role as Chief Executive Officer.

The Appointments Assurance Committee is a sub-committee of Council comprising of three Council members, one of whom is the chair of the Audit and Risk Assurance Committee, the others being the Chair of Council and EPSRC's Chief Executive Officer. It normally meets three times a year. It is responsible for reviewing the adequacy and robustness of the nomination and selection processes and confirming new appointments to the Audit and Risk Assurance Committee and to EPSRC's strategic advisory bodies, Strategic Advisory Network (SAN) and Strategic Advisory Teams (SATs). In addition, this sub-committee also provides advice to Council on its own composition and assists with the development of recruitment specifications for Council vacancies.

The SAN provides the Executive of EPSRC with strategic advice that assists us to develop, implement and modify plans, and to make appropriate recommendations to our Council. The Network is devised as a flexible resource, enabling the Executive to obtain the advice it needs in a timely manner, and drawing on a range of perspectives from across our key stakeholder groups including academia, business, third sector and Government.

The SAN is made up of around 30 prominent and highly regarded individuals who have an established record of achievement and bring a broad strategic view to bear. Members bring expertise from their own background, but are required to advise across the breadth of EPSRC's portfolio.

In 2016-17 EPSRC was responsible for hosting the RCUK Executive Directorate. Due to the increasing scale and complexity of the activities undertaken by the Executive Directorate, EPSRC set up the Governance Oversight and Assurance Board (GOAB). The scope of GOAB is to:

- Review governance and internal control frameworks;
- Review existing risk management arrangements and specific high level risks;
- Review and determine as appropriate mutual EPSRC/RCUK organisational policies.

Membership consists of the EPSRC CEO and Chief Operating Officer and the RCUK Executive Director.

EPSRC continues to comply with the policies set out in the Cabinet Office 'Principles of Good Corporate Governance in Executive Non-Departmental Public Bodies'.

## Approach to Risk Management

A harmonised risk management policy operates within the Arts and Humanities Research Council (AHRC), EPSRC and the Economic Research Council (ESRC) (the Professional Support Unit (PSU) Councils). This is based on the guiding principles of managing risk within the public sector, representing best practice whilst being proportionate to the level of risk exposure and risk appetite within the PSU Councils.

EPSRC's role is to support independent, high quality research and postgraduate training, as well as the impact that engineering and physical sciences research can have in the business, public and third sectors. At any one time we support a significant number of researchers and postgraduate students in academic institutions and Independent research organisations. Some research, by its pioneering and innovative nature, carries risk, but we have a very low risk appetite in terms of the way we conduct our business. We work

# Corporate Governance Report

only with eligible research organisations and make our investment decision using a transparent peer review process, details of which can be found at: [www.rcuk.ac.uk/funding/peerreview](http://www.rcuk.ac.uk/funding/peerreview).

EPSRC's risk management process is designed to manage risk and not eliminate it. The quarterly review process allows risk owners to comment on mitigation actions and provide assurance that risks are being managed.

Strategic risks are identified through the ELT and reviewed by ARAC and Council at each meeting, who pay particular attention to those highlighted as significant high-level risks. It is through this review process that EPSRC is able to manage the key headline risks that could impact on the delivery of the EPSRC's programmes and operations and enables mitigating actions to be agreed and implemented.

Overall, I am satisfied that, with effective input from Council and ARAC, risk is being managed effectively within EPSRC.

## Significant Risks in 2016-17 and Key Mitigations

This section covers the most significant risks faced in 2016-17 and the key mitigations in place. These risks are either of a long-term, on-going nature and require continued risk management or have yet to be managed down sufficiently.

- **UK Shared Business Services (UK SBS)**

**Risk:** The uncertain future of UK SBS and their ability to continue to maintain service delivery during this period of change is a risk that requires constant review and management. This coupled with the ongoing issues regarding the stability, security and resilience of the 12.0.6 Oracle platform makes this a high level risk which if unaddressed may result in severe operational risks and directly impact on EPSRC's ability to conduct its core business.

**Mitigation:** EPSRC has continued to manage this risk throughout 2016-17 through engagement with UK SBS at different levels and across various groups. These and other issues are covered below in the UK SBS Assurance section.

- **Higher Education and Research Act & Transition to UKRI**

**Risk:** The ability of EPSRC to continue to deliver its aims and objectives must be seen in the context of the wider change agenda faced by all Research Councils, with the most significant of these being the impact of the Higher Education and Research Bill which received Royal Assent on 27 April 2017. The Act sets out Government plans for the creation of a new organisation called UK Research and Innovation (UKRI), to incorporate the functions of all seven Research Councils, Innovate UK and HEFCE's research and knowledge exchange functions. The anticipated creation of UKRI on 1 April 2018 will present significant challenges to all Research Councils. As the Bill passed through the Parliamentary approval process, the Research Councils continued to push forward the RCUK Change Programme during 2016-17 and the subsequent UKRI Transition Programme. This is covered in more detail later (under 'Efficiency') and the risk remains that the uncertainty may affect staff morale and place additional demands on resource. This may in turn make it difficult to maintain 'business as usual' in the transition leading to the new structure unless mitigations are in place.

**Mitigation:** EPSRC has been fully engaged in the process and is working collaboratively with BEIS to identify and actively mitigate any risks. EPSRC is also fully engaged in the UKRI Transition Programme at both strategic and operational levels and will continue to influence the agenda where possible. Senior management also monitor the impact on EPSRC's resources.

# Corporate Governance Report

- **BREXIT**

**Risk:** The result of the EU Referendum has created uncertainty around the future availability of EU Funding and the wider research and Higher Education ecosystem. This risk is currently being managed at a cross council level through the new RCUK Brexit Co-ordination Network.

**Mitigation:** EPSRC has representation on this group which enables the EPSRC position to be voiced and the collective position to be fed back and duly considered by EPSRC senior management.

- **Cyber Security**

**Risk:** The threat to cyber security is severe, increasing and requires constant monitoring and vigilance.

**Mitigation:** Firewall and anti-spam processes are in place which provide us with some confidence in the integrity of our infrastructure. The PSU Information Systems team are committed to assessing controls and establishing compliance with the Cyber Security Essentials scheme and the Cyber Security Ten Steps. Penetration test audit findings and lessons learnt from security incidents are responded to in a timely manner leading to improvements in our security controls. ARAC are actively monitoring this risk.

- **Relationships with BEIS**

**Risk:** The ongoing uncertainty resulting from the machinery of government changes will potentially result in delays to key issues being formally signed off by BEIS.

**Mitigation:** This is being managed within EPSRC through regular contact with BEIS at a senior level and through business as usual activities.

## Efficiency and Change Management

### Efficiency Programme

From 2011 to 2016 the Research Councils implemented an efficiency programme to drive down the costs and overheads associated with research. The efficiency savings derived from this programme were re-invested in research.

In the spring of 2011 RCUK published Efficiency 2011-15: Ensuring Excellence with Impact describing how the Research Councils would implement the recommendations in Sir William Wakeham's report Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institution. The efficiency savings were applied to both research grants and fellowships awarded via competitive routes to research organisations and also to Research Council institutes.

The efficiency programme ended in March 2016 and during its five years achieved savings of £545m, exceeding the planned target. This figure will rise to over £610m over the next few years as the ongoing contributions from the efficiency savings deducted at source from grants awarded during this period are included.

Further details of the efficiency programme, including the final report, can be found at <http://www.rcuk.ac.uk/research/efficiency/efficiency2011/> and <http://www.rcuk.ac.uk/Publications/policy/Efficiency2011/>

Alongside these measures the Research Councils also introduced changes to the requests for equipment on grants, including asking applicants to demonstrate how the usage of the equipment will be maximised. RCUK has worked with university partners to develop options to promote and assist equipment sharing, including exploring the use of asset registers. There is good anecdotal evidence of significant progress by universities to promote sharing, and of very efficient usage of large pieces of experimental equipment.

# Corporate Governance Report

## UKRI Transition Programme

On the 27 April 2017, the Higher Education and Research Bill (HERB) received Royal Assent and became an Act which will result in the creation of UKRI. In February 2017 Sir Mark Walport was appointed as the Chief Executive designate of UKRI.

BEIS have been leading the UKRI Implementation Programme with the Research Councils working directly on the following work streams:

- People and HR;
- Finance, Governance and Assurance;
- Legal; and
- Procurement.

Following the BEIS decision in October 2016 to revise their business case on common technology the Research Councils elected to restart the RCUK Business Digital and Technology Project focusing on the next 18 months' requirements.

In December 2016 BEIS took the decision to put their remaining Digital programmes on hold (Grants and HR/ Finance system replacement), and to maintain UK SBS as a shared service provider through to 2019-20. The Research Councils therefore agreed in February 2017 to start the requirements phase for HR and Finance service and for a Grants service working closely with the UKRI Transition Programme and with work to secure and upgrade current UK SBS systems.

Also, 2016-17 saw the moves into Polaris House of Innovate UK and UK SBS as part of the office Estates change project led by the cross-Councils Campus Oversight Board.

A Change Assurance Board was established in April 2016 with membership drawn from the Chairs of Audit Committees of the Research Councils. This Board has provided challenge and advice throughout the changes described above.

## Professional Support Unit (PSU)

The PSU, hosted by AHRC, provides professional services to AHRC, EPSRC and the ESRC (the PSU Councils) in: Finance; Human Resources; Information Technology (it also hosts services on behalf of non-PSU Councils); Project Management; and Reprographics. The Head of PSU received the appropriate 2016-17 delegations from the PSU Councils which allowed the services to be delivered.

The PSU is overseen by a Management Board comprising the Chief Executive Officers and a Director from each of the PSU Councils, which meets quarterly. The Management Board received regular reports and an annual report from the Head of PSU that provided assurance on the level of service being delivered, the financial position and the risks being managed.

The Head of PSU also produced an Annual Assurance Statement covering 2016-17. The statement provides assurance to the CEOs that the PSU has in place appropriate systems and controls to support the services being delivered.

The PSU recognises that future developments in respect of the RCUK Change Programme and the creation of UKRI will impact on its future. These are reflected in the PSU Risk Register with the Head of PSU actively involved in the wider Research Council discussions. The PSU is also wholly engaged in the RCUK Change Programme and the transition to UKRI with staff fully contributing to the work streams. The PSU Project Office is also providing a significant amount of support to the various working groups that have been created.

# Corporate Governance Report

PSU has continued to provide support to EPSRC, however with the increasing pressures on PSU staff and with staff seeking opportunities within the project, the resilience of PSU service delivery will be tested. The position is being carefully monitored by the Head of PSU and the PSU Senior Management Team with regular reporting to the PSU Management Committee. Appropriate measures will be put in place to ensure that PSU continues to provide the required level of service.

## Other Key Governance Activities

### Pay Remit

Pay setting arrangements throughout the Civil Service are set out in guidance issued by HM Treasury. I can confirm that EPSRC was compliant with the requirements.

### Information Management

The PSU Information Management Team is responsible for:

- Records Management;
- Freedom of Information;
- Data Protection;
- Information Security.

This service is provided for EPSRC alongside the other PSU Councils, providing a common approach and a body of expertise.

EPSRC has in place a system of control for Information Risk, which is reflected in the annual Information Security Health Check submitted to BEIS. The Health Check requires organisations to have plans in place to deliver full compliance with mandatory security outcomes. Internal Audit reviewed the health checks of all Research Councils prior to submission to BEIS and were satisfied that the appropriate plans were in place.

EPSRC is committed to safeguarding information and personal data and continues to work with its key service providers to improve resilience and protect its information assets from cyber threats.

In 2016-17, there were no significant incidents where a lapse in the security of personal data resulted in the need to report an incident to the Information Commissioner's Office.

During the year all EPSRC staff carried out Information Security training appropriate to their level of responsibility via an e-learning package. This is also considered to be an important tool to raising the awareness of staff to the threat of cyber security.

### Health and Safety

PSU have produced a health and safety report for 2016-17 which was presented to the PSU Management Committee and contained no issues which need to be reported in this statement.

### Transparency

EPSRC is committed to the transparency agenda introduced by the Government to allow visibility on how public funds are used and managed. I can confirm compliance with all the disclosure requirements which are made on our website and which are referenced on the data.gov.uk website. The transparency disclosure made by EPSRC covers:



# Corporate Governance Report

- EPSRC organisation structure;
- Salary bands and senior posts;
- Government Procurement Card transactions;
- All expenditure.

## Ministerial Directions

There were no Ministerial directions given in 2016-17.

## Tax Arrangements of Public Sector Appointees

The Alexander Review, published in May 2012, made a number of recommendations to ensure that the highest standards of integrity could be demonstrated in the tax arrangements of senior public appointees. I can confirm that all of EPSRC's senior staff are paid through a formal payroll facility and that arrangements are in place through retained HR to provide assurance that appropriate tax arrangements are in place to cover any other appointees covered by the report.

In 2016-17 EPSRC identified two contractors who fell within the Alexander Review criteria. EPSRC has sought and gained assurance that the appropriate tax arrangements are in place for the contractors identified.

Council members are 'office holders' as defined within HMRC guidance, and their remuneration is subject to Pay as you Earn with income tax and employee National Insurance Contributions deducted at source through the payroll.

As such, EPSRC is in compliance with the recommendations in the HM Treasury 'Review of the tax arrangements of public sector appointees' published in May 2012.

## Macpherson Review

The review of quality assurance of Government analytical models undertaken by Sir Nicholas Macpherson and published by HM Treasury in March 2013 made a number of recommendations for government departments and their Arm's Length Bodies. To comply with this review and the BEIS requirements EPSRC have reviewed their use of analytical modelling in 2016-17 and have not identified any that were considered to be business critical.

## Austerity Measures

EPSRC has robust control processes, checks and reporting arrangements in place to review and manage expenditure in keeping with the austerity measures introduced by Government in May 2010. This includes all expenditure being approved through a formal process of delegated authority and monthly reporting to budget holders.

## Regularity and Propriety

EPSRC requires all staff, including Council and groups within the governance structure to act honestly and with integrity and to safeguard the public resources for which they are responsible.

EPSRC follows the harmonised Counter Fraud & Bribery policy which is subject to annual review by the PSU Head of Risk & Governance. All staff are reminded of the policy on an annual basis which is available through the PSU portal, thus ensuring that there is an awareness of their responsibilities to report fraud and the process by which to do so. Staff are also required to undertake annual E-Learning awareness training covering counter fraud and bribery, in 2016-17 this was completed by all staff.

# Corporate Governance Report

The Research Councils have representation on the BEIS Counter Fraud Working Group and the Cabinet Office Fraud Network where best practice is shared and current fraud issues discussed.

Consistent with all the other Research Councils, EPSRC has established a harmonised Whistleblowing policy. The Whistleblowing policy encourages and enables employees to speak out when they encounter or suspect malpractice. It guarantees whistle-blowers protection consistent with Public Interest Disclosure Act (pida) and facilitates whistleblowing through a number of routes.

I can confirm that for 2016-17:

- neither I nor my staff authorised any course of action, the financial impact of which is that transactions infringe the regulatory requirements as set out in Managing Public Money;
- there were no novel, contentious or repercussive transactions that required BEIS or Treasury approval;
- there were no cases of whistleblowing;
- there were no instances of fraud identified within EPSRC or within UK SBS which impacted on EPSRC.

## Review of Effectiveness

As Accounting Officer, I have responsibility for reviewing the effectiveness of governance, risk management and other internal controls at EPSRC to ensure a sound system of internal control is being maintained. In 2016-17 this review has been informed by the work of EPSRC's Directors, the Audit and Risk Assurance Committee, the internal audit service, comments from the external auditors and cross-Council assurance programmes. The conclusion of my review is covered below.

## EPSRC Directors

EPSRC Directors produce an annual statement on the internal control framework within their areas of responsibility. The statements are then consolidated into a single report, which provides me with a level of assurance on the internal control framework. Whilst some issues have been raised in respect of UK SBS and the increasing threat of cyber security, which will be addressed during 2017-18 and covered elsewhere in this statement, I am content that the 2016-17 reports provided me with reasonable assurance that a sound internal control framework is in place. The position will require constant vigilance during 2017-18 as the Research Councils transition towards UKRI.

## Audit and Risk Assurance Committee

I have examined the reports of the Audit and Risk Assurance Committee meetings including their review of internal controls, governance and risk management processes. I attend Audit and Risk Assurance Committee meetings and no major issues of concern have been raised with me by the Committee, other than those mentioned in the report, which require disclosure here.

## Internal Audit

Internal Audit is provided by the Government Internal Audit Agency (GIAA) which, from October 2016, subsumed the Councils' own Audit and Assurance Services Group (AASG). The Head of Internal Audit is required to provide me with an opinion on the overall adequacy and effectiveness of EPSRC's framework of governance, risk management and internal control. This opinion is informed by the internal audit work completed during the year, in line with the internal audit plan agreed by management and the Audit and Risk Assurance Committee. The work of AASG provides assurance in two areas: core EPSRC activities and cross council activities with an EPSRC involvement.

# Corporate Governance Report

In 2016-17, based on the audit work covered below, AASG was able to provide EPSRC with an overall moderate Level of assurance on the adequacy and effectiveness of EPSRC's internal controls, risk management and governance processes.

During the year a number of audits and assurance work were undertaken within the two areas of activity. The implementation of recommendations that relate specifically to EPSRC is monitored by PSU with progress reports presented to each Audit and Risk Assurance Committee meeting.

## Core EPSRC Audits

The Core audits undertaken in 2016-17 were:

- Performance Management and Delivery Plan – Moderate assurance;
- Budget Management and Commitment Forecasting – Moderate assurance;
- Holmes Hines Memorial Trust – Substantial assurance;
- Risk Management and Assurance Mapping – Moderate assurance;
- Preparing the Organisation for Change – Moderate assurance;
- PSU Information Management – Limited assurance;
- Follow up of Audit Recommendations - Advisory.

All accepted recommendations in relation to the above audits have implementation plans in place. The specific recommendations in respect of the Information Management audit will be taken forward to ensure that the issues raised are fully addressed.

## Cross-Council Audits

In 2016-17 AASG carried out 26 cross-council activities that were relevant to EPSRC. The following audits received Limited Assurance and where appropriate EPSRC will engage with the Research Councils to ensure that the issues raised are fully addressed:

- Change Management: RCUK Change Programme;
- Change Management: RCUK Communication and Public Engagement;
- Open Access Block Grant;
- Procurement.

Where recommendations relate specifically to EPSRC their implementation is closely monitored by PSU on behalf of EPSRC. The recommendations of a cross-council nature are monitored through the cross-council Governance, Risk, Assurance & Improvement Network or through the appropriate functional governance group within the Councils.

## Funding Assurance

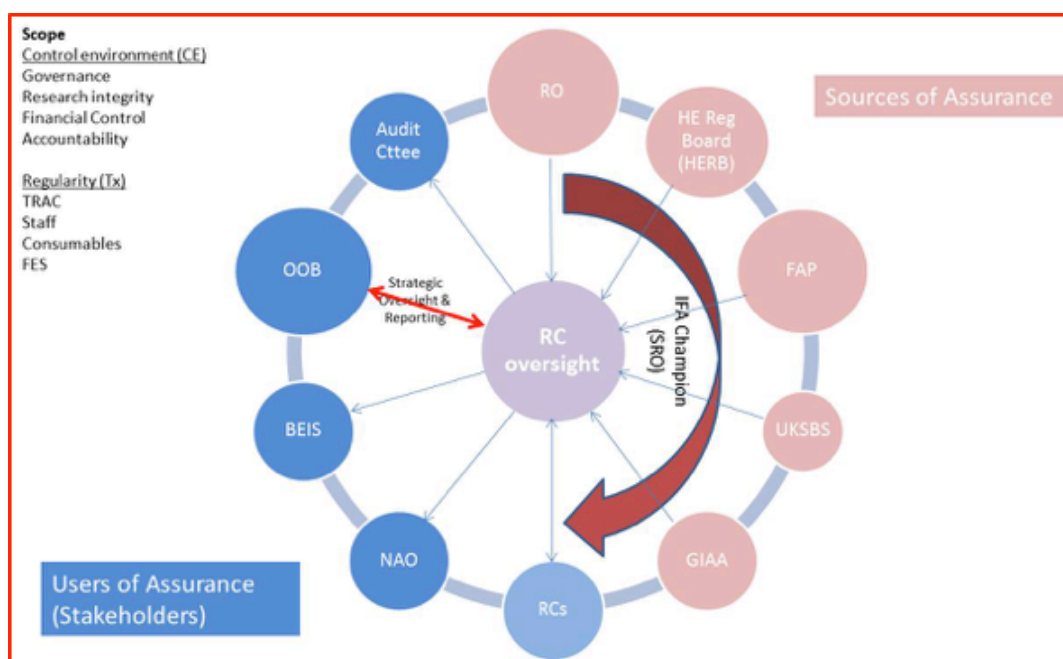
Across the RCUK community research funding totals £2.9bn of which £931m relates to EPSRC. The funding landscape has two major funding streams:

- Grants administered through the Research Councils' automated grant management system (SIEBEL) and awarded to eligible research organisations (ROs). This amounts to £880m for EPSRC;
- Non-SIEBEL funding including Strategic Partnerships which amounts to £51m for EPSRC.

# Corporate Governance Report

During the year a Funding Assurance Working Group (FAWG) was set up to review the robustness of the funding assurance framework and a revised and improved Integrated Funding Assurance (IFA) framework has been implemented. This framework is predicated on establishing appropriate accountability within the RO in receipt of funding and collating assurance from a range of sources as shown in Figure 1 below.

**Figure 1: IFA Framework**



## SIEBEL Grants

The assurance provided through this framework indicates a very low level of current and historic errors for all Councils. In particular the report from the head of Funding Assurance provides Moderate Assurance based upon the programme of work undertaken.

Looking ahead, grants to overseas organisations as part of Official Development Assistance, Global Challenges Research Fund and Newton Fund will increase and have the potential to become a significant part of the Research Council's expenditure. A sub-group of FAWG is reviewing all aspects of international funding and sub-contracting.

In addition, in December 2016 the Cabinet Office launched a set of Minimum Grant Standards to promote effective grant making, with 2017 being a pilot year to embed the standards. The Research Councils have mapped the standards against current policies and procedures and have demonstrated through this assurance framework clear evidence of compliance.

## Non-Siebel awards/funding

Funding to Universities and Independent Research Organisations represents the major part of EPSRC non-SIEBEL funding (£29.8m), this is covered by the assurance arrangement outlined above for SIEBEL funding and other specific conditions and agreements. A significant amount of non-SIEBEL funding (£6.1m) is to BEIS and BEIS Partner Organisations and other Government Departments and these organisations already have a well-managed control and audit regime in accordance with 'Managing Public Money'. No issues were identified in 2016-17.

The remaining areas include EPSRC's funding for other research contracts and individual subscriptions which are covered by specific conditions and agreements. No issues were identified in 2016-17.

# Corporate Governance Report

## Summary

The assurance provided through the above framework indicates a number of funding pressures and the nature of some activities are complex and novel. I am however assured through the mechanisms described here that they are being managed in an appropriate manner and that there are no major issues that require disclosure here.

## UK SBS Assurance

UK SBS provides processing services in human resources, procurement, payroll, finance and IT to all seven Research Councils. UK SBS also provided processing services in grants up until 31 December 2016 at which point these were transferred back to the Research Councils and currently reside within the RCUK Executive Directorate and are therefore hosted by EPSRC.

The Executive Director of UK SBS has written to me stating that the Head of Internal Audit has provided an opinion of Amber Assurance for both the internal operations within UK SBS and for its customer facing operations.

To provide additional assurance EPSRC has been operating a number of supplementary controls. AASG has examined the additional controls, the outcomes of which were:

- Payroll Assurance – Moderate assurance;
- GPC and iExpenses – Moderate assurance;
- Order and payment processing – Moderate assurance;
- Procurement – Limited assurance;
- Grants Processing – Moderate assurance;
- Human Resources – Moderate assurance;
- Non-Current Asset Accounting – Moderate assurance.

The accepted audit recommendations in these areas will be taken forward in 2017-18. The recommendations in respect of the procurement audit are being taken forward at a cross-Council level and will form part of the Change Programme to ensure that an appropriate level of procurement capacity exists within UKRI.

## UK SBS Risks and Issues

The BEIS strategy for shared services, including the provision of services for UKRI, is still evolving. It has been agreed that the planned transfer of services from UK SBS to other bodies by April 2018 is now not achievable or necessarily desirable and that UK SBS is likely to be delivering a number of services in some form until 2019-20.

The Security and Resilience programme for Oracle 12.0.6 saw the successful update and transfer of databases and applications to a new environment at the end of 2016. Notable benefits are to the security and resilience with the security assessment undertaken after the transfer indicating that the systems were well within the best practice threshold. Planning for the proposed Oracle upgrade from 12.0.6 to 12.1.3 is underway. Once completed, this will mean that both the platform and full application stack will be back into full support until 2021, opening the door for further improvements and upgrades if required and providing significant contingency for ongoing service provision for the Research Councils and UKRI pending a decision on future direction.

UK SBS highlights its key risks as continued resilience and capacity and capability. UK SBS' ability to maintain service delivery and to prepare for and transfer services over the next two to three years will be highly dependent on capacity and capability.

# Corporate Governance Report

## External Audit

The EPSRC Annual Report and Accounts are audited by the National Audit Office who produce an Audit Completion Report.

## Conclusion

The conclusion of my review is that EPSRC's overall governance, risk management and internal control structures are sound and ensure that public money is properly accounted for and used economically, efficiently and effectively. I can provide assurance that the governance and control structures in place support the achievement of EPSRC's policies, aims and objectives and that effective plans for continuous improvement are in place.



**Professor Philip Nelson**, Accounting Officer  
22 June 2017

# Remuneration and Staff Report

## Remuneration Report

### Council Chair and Council Members except Chief Executive

## Unaudited Information

### Policy

The Chair and Council members receive a letter of appointment from the Department for Business, Energy & Industrial Strategy (BEIS) and are not employees of the EPSRC, although remuneration is made through the EPSRC payroll. The terms of appointment allow for members to resign from office by notice in writing to the Secretary of State. Members may also be removed from office by the Secretary of State on grounds of incapacity or misbehaviour or a failure to observe the terms and conditions of appointment.

Council Chair and Council Member appointments are Ministerial Appointments made by the Secretary of State for BEIS. The process for new appointments to the Council Chair and Council Members is regulated by the Commissioner for Public Appointments and therefore made in accordance with the Governance Code on Public Appointments set out by the Cabinet Office Centre for Public Appointments (<https://publicappointments.cabinetoffice.gov.uk/>). In accordance with the Code available at <http://publicappointmentscommissioner.independent.gov.uk>, vacancies are advertised nationally and a panel, including independent members, oversee the process. The panel reviews and shortlists applications, carries out interviews, and then forwards names of appointable candidates to the Secretary of State for selection. Once the Secretary of State has made a final decision, an offer of appointment is issued by BEIS on their behalf to the successful candidate.

Council Chair and Council Members are defined as Office Holders. They are neither employees nor civil servants. Appointments are usually made for four years. In exceptional cases members may be offered the possibility of re-appointment for up to a further four years. Appointments are non-pensionable and there is no compensation for loss of office.

As well as an honorarium in recognition of their service to EPSRC, Council members are refunded for reasonable expenses. Remuneration rates for Council Chair and Council Members are the same across Research Councils. Members of Council who are civil servants are not entitled to receive an honorarium.

# Remuneration and Staff Report

## Audited Information

### Remuneration

<b>Council Chair and Council Members (audited information)</b>	<b>Period Of Appointment</b>	<b>2016-17 Remuneration £000</b>	<b>2015-16 Remuneration £000</b>
Dr Paul Golby (Chair)	01-04-12 - 31-03-18	15-20	15-20
Professor Andrew Blake	01-04-12 - 31-03-16	-	5-10
Professor Dame Julia King	01-04-12 - 31-03-16	-	5-10
Professor Sir Richard Friend	01-04-12 - 31-03-18	5-10	5-10
Professor Vernon Gibson*	01-12-12 - 30-11-16	-	-
Dr Helen Neville	01-04-13 - 31-03-18	5-10	5-10
Professor Anthony Finkelstein*	01-04-13 - 31-03-18	-	5-10
Professor Richard Jones	01-04-13 - 31-03-18	5-10	5-10
Dr David Watson**	01-04-09 - 31-03-17	5-10	5-10
Professor Lord Ara Darzi	01-11-13 - 31-10-17	5-10	5-10
Rt Hon Baroness Pauline Neville-Jones	01-11-13 - 31-10-17	5-10	5-10
Dr Matthew Rosseinsky	23-03-15 - 22-03-19	5-10	5-10
Mr Jack Boyer	01-04-11 - 22-03-19	5-10	5-10
Ms Bonnie Dean	23-03-15 - 22-03-19	5-10	5-10
Professor Tim Jones	23-03-15 - 22-03-19	5-10	5-10
Professor Muffy Calder	04-04-15 - 31-03-19	5-10	5-10
Professor Mark Smith	12-12-16 - 31-03-18	0-5	-
Professor Tim Whitley	12-12-16 - 31-03-18	0-5	-

\*Remuneration not payable as member works in the Civil Service

\*\*Chair of EPSRC Audit and Risk Assurance Committee



# Remuneration and Staff Report

## Chief Executive and EPSRC Directors

The remuneration of the Chief Executive of EPSRC is decided by a Remuneration Panel chaired by the BEIS Director General of Knowledge and Innovation and approved by the BEIS Permanent Secretary.

The performance of EPSRC Directors is assessed annually by the Directors Remuneration Committee. This Committee is chaired by the Chair of Council and other membership comprises the Chief Executive and the Chair of Audit and Risk Assurance Committee or Council members. Assessments are made using EPSRC's Staff Performance Management arrangements for Research Council Directors, taking into the account the following:

- Benchmarking against comparators in other Research councils;
- Annual increases agreed for other staff pay grades within EPSRC;
- BEIS and Government pay policy guidelines and constraints.

There is no separate Remuneration Committee that considers the pay of other employees as they are covered by a collective agreement with Trade Unions which is managed through the Research Council Harmonised Pay consortium. All pay awards are subject to a satisfactory performance assessment. The amount of any non-consolidated one off payment is determined by the level of performance rating within the year.

## Contracts of Employment

### Chief Executive

EPSRC's Chief Executive is on secondment from the University of Southampton on a 4 year fixed term contract.

### Deputy Chief Executive

EPSRC's current Deputy Chief Executive is on secondment from the University of Nottingham on a 2 year fixed term contract on a 0.8 of 1FTE basis.

### Directors

All Directors are employees of EPSRC. The Chief Executive and all Directors are subject to a notice period of 3 months and any compensation awarded for early termination is subject to the terms and conditions of the Research Councils' Joint Superannuation Early Severance Scheme.

### Executive Director of RCUK

The Executive Director of Research Councils UK (RCUK) is employed by EPSRC but their remit covers all of the Research Councils and their costs are recharged accordingly.

# Remuneration and Staff Report

## Chief Executive and EPSRC Directors

Chief Executive and Directors	2016-17				2015-16			
	Salary £000	Bonus <sup>1</sup> £000	Pension Benefits* £000	Total £000	Salary £000	Bonus <sup>1</sup> £000	Pension Benefits* £000	Totals £000
Professor P Nelson <sup>2</sup> Chief Executive	140-145	5-10	26 <sup>3</sup>	175-180	140-145	10-15	23	175-180
Professor T Rodden <sup>4</sup> Deputy Chief Executive	85-90	-	16 <sup>5</sup>	100-105	-	-	-	-
Mr A Emezc <sup>6</sup> Director	-	-	-	-	-	0-5	-	0-5
Mr A Lewis Director	100-105	5-10	45	150-155	95-100	0-5	62	165-170
Dr L Thompson <sup>7</sup> Director	-	-	-	-	55-60	0-5	51	110-115
Dr N Viner <sup>8</sup> Director	80-85	-	57	135-140	30-35	-	47	75-80
Mrs H Reynolds <sup>9</sup> Executive Director RCUK	120-125	5-10	27	150-155	120-125	-	24	140-145

\*The value of pension benefits accrued during the year is calculated as (the real increase in pension multiplied by 20) plus (the real increase in any lump sum) less (the contributions made by the individual). The real increases exclude increases due to inflation or any increase or decreases due to a transfer of pension rights.

<sup>1</sup>Performance Bonuses for 2015-2016 paid in 2016-17.

<sup>2</sup>Prof Nelson is an employee of the University of Southampton and is on secondment to EPSRC. The values shown above are the amounts reimbursed (excl Pension & NI contributions) to the University of Southampton. VAT is payable on the total amount invoiced but is not included in the figure above. EPSRC also covers the expense claims for travel and accommodation between Southampton and EPSRC Head Office in Swindon. This is a taxable benefit and EPSRC covers the cost of any tax and NI payable on these expenses.

<sup>3</sup>The pension benefit disclosure for Prof Nelson is not equivalent to the pension benefit disclosure of the other EPSRC directors, it is the re-imbusement of the contributions EPSRC makes to the University of Southampton in respect of Prof Nelson's pension.

<sup>4</sup>Prof Rodden is an employee of the University of Nottingham and is on secondment to EPSRC. The values shown above are the amounts reimbursed (excl Pension & NI contributions) to the University of Nottingham. VAT is payable on the total amount invoiced but is not included in the figure above. The secondment is 0.8 of 1FTE and began on 18-04-16. His full time equivalent salary for 2016-17 is in the salary band 115-120.

<sup>5</sup>The pension benefit disclosure for Prof Rodden is not equivalent to the pension benefit disclosure of the other EPSRC directors, it is the re-imbusement of the contributions EPSRC makes to the University of Nottingham in respect of Prof Rodden's pension.

<sup>6</sup>Mr Emezc was on secondment to the University of Surrey from 01-10-14 to 30-11-15. EPSRC invoiced the University of Surrey for all employment costs inc an allowance of not more than £1,200 per month to cover travel expenses between EPSRC and the university. These invoices were subject to VAT. The allowance to cover travel expenses is a taxable benefit and EPSRC covers the cost of tax payable. Mr Emezc left EPSRC on 30-11-15.

<sup>7</sup>Dr Thompson left EPSRC on 31-10-2015. Her full time equivalent salary was in the salary band 90-95.

<sup>8</sup>Dr Viner became a director on 01-11-2015. His full time equivalent salary for 2015-16 was in the salary band 75-80.

<sup>9</sup>Mrs Reynolds is employed as Executive Director of RCUK. The role is funded by EPSRC, who host RCUK. Mrs Reynolds works primarily in London and any claims for accommodation in Swindon are covered by EPSRC. This is a taxable benefit and EPSRC covers the cost of any tax and NI payable on these expenses.

## Remuneration and Staff Report

Reporting bodies are required to disclose the relationship between the remuneration of the highest-paid director in their organisation and the median remuneration of the organisation's workforce. The median excludes the pension benefits disclosed above.

	2016-17	2015-16
Banded remuneration of highest paid Director (£000)	150-155	150-155
Median remuneration of EPSRC workforce (£)	30,748	31,463
Range of staff remuneration (£)	£15,263-£153,742	£18,661-£153,314
Ratio	4.96	4.85

Salary paid in 2016-17 includes gross salary, overtime, recruitment and retention allowances, responsibility allowances and any other allowance to the extent that it is subject to UK taxation.

It does not include severance payments, re-imbusement of expenses, employer pension contributions and the cash equivalent transfer value of pensions. There has been an increase to the average annual earnings (excluding bonuses) for these members of staff of 2.11% between 2015-16 and 2016-17.

The monetary value of benefits in kind covers any benefits provided by the employer and treated by HM Revenue and Customs as a taxable emolument. There were no benefits in kind paid to any of the EPSRC Executive in 2016-17.

In 2016-17 no employees received remuneration in excess of the highest-paid director (2015-16, 0).

Decisions on whether to award non-consolidated performance awards to Directors are made by the CEO in conjunction with the Remuneration Committee. Decisions are strictly performance based and made in accordance with Cabinet Office Guidance 'Senior Civil Service pay 2013/14' document published in March 2013 and Non-Consolidated Performance Related Pay (NCPRP) guidance set out in the Government's announcement in May 2010, as well as the annual Senior Salaries Review Body report and any guidance from HM treasury, Cabinet Office or BEIS. Directors were awarded non-consolidated awards based on how well they achieved or exceeded their personal objectives given to them at the beginning of the appraisal period.

The Professional Support Unit (PSU) was created in the year 2013-14. The Head of the PSU, Mr G Raikes, is the Director responsible to each Research Council for all PSU services provided to that Council, and he reports to the CEO of each of the Councils supported by PSU. Mr Raikes' salary is paid by his employing Council (AHRC) and is disclosed in its Annual Report. A proportion of Mr Raikes' salary is recharged across the PSU Councils as part of the agreed charging process. The Remuneration of the Head of PSU is determined by the employing Council's Remuneration Committee. A PSU recharge is necessary to ensure each of the Council's costs fairly reflect the services received.

# Remuneration and Staff Report

## Pension Benefits

Chief Executive and Directors	Accrued pension at pension age as at 31-03-17 and related lump sum £000	Real increase in pension and related lump sum at pension age £000	CETV at 31-03-17 £000	CETV at 31-03-16 £000	Real increase in CETV £000
Professor P Nelson Accounting Officer*	-	-	-	-	-
Professor T Rodden Deputy CEO**	-	-	-	-	-
Mr A Lewis Director	35-40 plus lump sum 115-120	0-0.25 plus lump sum 5-7.5	773	664	35
Dr L Thompson*** Director	-	-	-	762	-
Dr N Viner Director	30-35 plus lump sum 95-100	2-2.5 plus lump sum 7.5-10	657	577	48
Mrs H Reynolds Executive Director RCUK	40-45 plus lump sum 125-130	0-2.5 plus lump sum 2.5-5	896	831	23

\* On secondment from University of Southampton

\*\* On secondment from the University of Nottingham

\*\*\* Left 31-10-2015.

## Unaudited Information

### Pension Schemes

The employees of EPSRC are automatically enrolled in the Research Councils' Pension Scheme (RCPS) which is an unfunded defined benefit scheme paid for by employee and employer contributions as well as annual Grant-in-Aid on a pay-as-you-go basis. The RCPS is in all respects 'by-analogy' to the Principal Civil Service Pension Scheme, except that the employer's contribution is determined separately. The scheme provides retirement and related benefits based on final or average emoluments. Redundancy and injury benefits are administered and funded by the Council. The scheme is administered by the Research Councils' Joint Superannuation Service (JSS) with the associated Grant-in-Aid managed by BBSRC.

Employees may be in one of four defined benefit scheme arrangements; either a 'final salary' scheme (classic, classic plus or premium); or a career average scheme (Nuvos). Pensions payable are increased annually in line with changes in the Consumer Prices Index (CPI). The employer contribution rate is agreed by the RCPS Board of Management on the recommendation of the scheme actuary; Government Actuary's Department (GAD) and is set at 26.0% of pensionable pay.

## Remuneration and Staff Report

The employee contribution rates are by analogy with the PCSPS rates. For the period 1 April 2016 to 31 March 2017 the rates and annualised earnings brackets were as follows:

Employee contribution rates and the method for calculating the rates for the RCPS changed on 1 April 2015 through the by-analogy arrangement with the PCSPS. The new method is based on the employees 'annualised earnings', which is the actual earnings in the month multiplied by 12. The employee contribution rate is tested against the 'annualised earnings' each month with the employee paying the appropriate contribution. The rates for the period 1 April 2016 to 31 March 2017 were as follows:

<b>Annualised pensionable earnings</b>	<b>Classic % contribution rate before tax relief</b>	<b>Classic Plus, Premium &amp; Nuvos % contribution rate before tax relief</b>
Up to £15,000	3.80	4.60
£15,001 - £21,210	4.60	4.60
£21,211 - £48,471	5.45	5.45
£48,472 - £150,000	7.35	7.35
£150,001 and above	8.05	8.05

A Partnership Pension Account was made available to new staff from 1 October 2002, based on the portable Stakeholder Pension introduced by the Government in 2001. This is a defined contribution scheme. The employers pay the RCPS 0.8% of pensionable pay to cover death in service and ill health benefits. The employers pay the balance to the employee's private pension provider. The employer contribution for 2016-17 was £825 (2015-16 £13,975).

The accrued pension quoted is the pension the member is entitled to receive when they reach pension age or immediately on ceasing to be an active member of the scheme if they are already at or over pensionable age. Pensionable age is 60 for members of classic, classic plus and premium and 65 for members of Nuvos.

On 1 April 2015 PCSPS launched a new pension scheme called Alpha. This scheme is similar to the Nuvos career average scheme but with the retirement age aligned to the state pension age. RCPS cannot operate by analogy to the new Alpha scheme as the legislation does not permit this. Reform options are currently being discussed with HM Treasury and, BEIS have given permission for RCPS to continue 'as is' beyond April 2015.

Further details about the Research Councils Pension Scheme pension arrangements can be found at the website <http://jss pensions.nerc.ac.uk>

Contributions are set at a level that is expected to be sufficient to pay the required benefits falling due in the same period with future benefits earned during the current period to be paid out of future contributions. The assets of all schemes are held separately from those of EPSRC in an independently administered scheme. It is not possible to identify EPSRC's share of the underlying assets and liabilities of any of the pension schemes. In RCPS, EPSRC has no legal or constructive obligation to pay those future benefits. Its only obligation is to pay the contributions as they fall due and if the entity ceases to employ members of RCPS, it will have no obligation to pay the benefits earned by its own employees in previous years. For this reason, RCPS is treated as a defined benefit plan as stated in IAS 19.

In order that the defined benefit obligations recognised in the financial statements do not differ materially from those that would be determined at the reporting date by a formal actuarial valuation, the FRM requires that the period between formal actuarial valuations shall be four years, with approximate assessments in intervening years.

# Remuneration and Staff Report

Formal actuarial valuations are used to determine employer and employee contribution rates. The last actuarial valuation undertaken for the RCPS, as at 31 March 2006, was completed in 2008-09. An actuarial valuation as at 31 March 2010 was initiated but not completed due to HM Treasury suspending all public sector pension scheme valuations whilst reform policies were being developed. HM Treasury has since concluded their reform policy which enabled the Government Actuary Department to start the process of completing a revised scheme valuation. This valuation will be as at 31 March 2012 in accordance with HM Treasury revised scheme valuation directions. The conclusion of the scheme valuation is directly linked to the reform of the RCPS and therefore future employer contribution rates will be established once the scheme reforms are implemented; which is expected in April 2018.

For 2016-17, employer's contributions of 26% of pensionable pay were payable to RCPS, the cost of this was £2,122k (2015-16 £1,926k).

## **The Cash Equivalent Transfer Value (CETV)**

A Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme. A CETV is a payment made by a pension scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in their former scheme. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies. The CETV figures include the value of any pension benefit in another scheme or arrangement which the individual has transferred to the Research Councils' pension arrangements and for which the RCPS has received a transfer payment commensurate with the additional pension liabilities being assumed. They also include any additional pension benefit accrued to the member as a result of their purchasing additional years of pension service in the scheme at their own cost. CETVs are worked out within the guidelines and framework prescribed by the Institute and Faculty of Actuaries and do not take account of any actual or potential reduction to benefits resulting from Lifetime Allowance Tax which may be due when pension benefits are taken.

## **The real increase in the value of the CETV**

This reflects the increase in CETV effectively funded by the employer. It does not include the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement) and uses common market valuation factors for the start and end of the period.

# Remuneration and Staff Report

## Audited Information

### EPSRC Staff Report

#### Staff Numbers & Related Costs

	2016-17 £000	Re-represented 2015-15 £000
Wages and Salaries	8,630	8,202
Social Security Costs	801	560
Other Pension Costs	2,101	1,937
Temporary Staff	81	131
Secondment Expenditure	1,630	957
<b>Total Staff Costs as per Statement of Comprehensive Net Expenditure</b>	<b>13,243</b>	<b>11,787</b>
Less recoveries in respect of outward secondments	(276)	(320)
<b>Total Staff Costs after deduction of income received for secondments</b>	<b>12,967</b>	<b>11,467</b>

Income in respect of outward secondments is included in EPSRC's operating income (Note 6)

All of EPSRC's senior staff are paid through a formal payroll facility and arrangements are in place through HR to provide assurance that appropriate tax arrangements are in place to cover any other appointees.

The average number of full time equivalent persons employed during the year are documented in the table below:

#### UK-SBS Staff Disclosure

The main driver behind the increase in staff numbers was growth of the RCUK Executive Directorate. RCUK is delivering a greater volume of cross-council activity and now hosts the grants processing team (which transferred from UK SBS in 2016-17).

Staff Numbers	2016-17		2015-16		Total	
	EPSRC	PSU	EPSRC	PSU	2016-17	2015-16
Directly employed/core staff	226	19	207	23	245	230
Seconded in	19	-	11	-	19	11
Temporary Staff	2	-	2	-	2	2
<b>Staff Numbers</b>	<b>247</b>	<b>19</b>	<b>220</b>	<b>23</b>	<b>266</b>	<b>243</b>
Less Seconded Out	(5)	-	(4)	-	(5)	(4)
<b>Total</b>	<b>242</b>	<b>19</b>	<b>216</b>	<b>23</b>	<b>261</b>	<b>239</b>

# Remuneration and Staff Report

The average number of full time equivalent persons of each gender employed during the year was as follows:

Staff Numbers	2016-17		2015-16		Total	
	Male	Female	Male	Female	2016-17	2015-16
Directors	3	1	2	2	4	4
Senior Managers	13	17	14	16	30	30
Other Employees	73	138	66	130	211	196
<b>Total Directly Employed/Core Staff</b>	<b>89</b>	<b>156</b>	<b>82</b>	<b>148</b>	<b>245</b>	<b>230</b>

The AHRC hosts the PSU on behalf of AHRC, EPSRC and ESRC, providing HR, Finance, Project, Reprographics and Information Services to the three Councils. The costs of the PSU are recharged to the Councils who receive a service. All new staff appointments across these functions are recruited to AHRC.

Civil Service Compensation Scheme Analysis	Compulsory Redundancies		Other Departures		Total Departures		Total Packages	
	2016-17	2015-16	2016-17	2015-16	2016-17	2015-16	2016-17 £000	2015-16 £000
<£10,000	-	-	-	-	-	-	-	-
£10,000-£24,999	-	-	-	-	-	-	-	-
£25,000-£49,999	-	-	-	1	-	1	-	42
£50,000-£99,999	-	-	-	-	-	-	-	-
£100,000-£149,999	-	-	-	-	-	-	-	-
£150,000-£200,000	-	-	-	-	-	-	-	-
<b>Total number of exit packages</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>42</b>

## Staff Policies

### Sickness Absence

PSU Human Resources and the EPSRC management monitor staff sick absences on an ongoing basis with all sickness absences followed up by a return to work interview in line with the harmonised Research Council Sickness Absence Policy. Short-term and long-term absences are managed on a case-by-case basis with appropriate support from an Occupational Health Assessor



# Remuneration and Staff Report

	2016-17	2015-16
Average number of staff during year	245	230
Total days lost to sickness	1,499	1,116
Average working days lost	6	5
Days lost to long term absences	150	217

Common cause of absence	2016-17	
	Days lost	%
Anxiety/Stress Related	154	10
Cold/Cough/Flu	151	10
Hernia	148	10
Dizziness/Fainting	137	9
Blood Disorders	133	9
<b>Totals</b>	<b>723</b>	<b>48</b>

## Diversity and Equality

EPSRC policy on recruitment and selection is based on the Equality Act 2010 and focuses on the ability of the candidate to perform the job regardless of gender, colour, ethnic or national origin, disability, age, marital status, sexual orientation or religion. If disability should occur during employment, EPSRC would make every effort to maintain employment and to ensure the availability of adequate retraining and career development facilities. EPSRC monitors recruitment and workforce data as part of a strategy to ensure that it delivers on its commitment to ensuring that the best potential researchers from a diverse population are attracted into research careers.

EPSRC holds 'two ticks' Positive About Disabled People status which is awarded to employers who have made a commitment to employ, keep and develop the abilities of disabled staff. The annual review was successful and retention of the award was confirmed for a further year.

EPSRC supports the Mindful Employer Initiative and is a signatory to the Charter for Employers who are positive about mental health. PSU HR attends seminars and networking events involving other organisations. The initiative indicates a positive attitude about mental health and demonstrates EPSRC's commitment to improving the working lives of its employees.

## Employee Engagement

Employee involvement in management and policy matters continues through ongoing dialogue between all colleagues within EPSRC. PSU, which was formed in 2013-14 and hosted by AHRC, continues to engage with colleagues to facilitate management and policy matters for HR, Finance, IT and Project work in support of AHRC, EPSRC and ESRC.

EPSRC continues to recognise, and consults with, the Public and Commercial Services Union and Prospect on issues relating to pay and terms and conditions of employment. Consultation takes place through the Joint Negotiation Consultative Committee meeting on a quarterly basis.

## Remuneration and Staff Report

EPSRC actively participate in the Civil Service People Survey, with results consistently at or above the upper quartile. Findings are discussed with all employees through RC working groups and there is a continuous dialogue to ensure that employees are engaged on issues which affect them at work.

EPSRC also participated in Investors in People (IiP) and was awarded the silver standard. EPSRC has been participated in IiP for many years and views it as a valuable external measurement of employee engagement and a useful engagement tool.

### **Health and Safety**

EPSRC is a joint member of a cross Council Health and Safety Committee. This Committee considers and manages health and safety for AHRC, BBSRC, EPSRC and ESRC, and is supported and managed by PSU HR. The Committee has developed and implemented a common health and safety policy across the three Research Councils and has a continuous programme of inspections and engagement with employees in the three Research Councils. Joint Building and Office Services continues to provide health and safety support and administration across the seven Research Councils, relating to induction of new starters, first aid and fire safety.

# Parliamentary Accountability and Audit Report

## Audited Information

### Regularity of Expenditure

During the reporting period there were no transactions that required specific treasury approval. All transactions complied with the requirements of regularity as defined by the Treasury documents Managing Public Money.

### Losses and Special Payments

EPSRC has not recognised any losses or special payments in the financial year 2016-17

### Remote Contingent Liabilities

EPSRC has no contingent liabilities as at 31 March 2017.



**Professor Philip Nelson**, Accounting Officer  
22 June 2017

# Parliamentary Accountability and Audit Report

## The Certificate and Report of the Comptroller and Audit General

I certify that I have audited the financial statements of the Engineering and Physical Sciences Research Council for the year ended 31 March 2017 under the Science and Technology Act 1965. The financial statements comprise: Statements of Comprehensive Net Expenditure, Financial Position, Cash Flows, Changes in Taxpayers' Equity, and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration and Staff Report and the Parliamentary Accountability Report that are described in that report as having been audited.

### Respective responsibilities of the Council, Accounting Officer and Auditor

As explained more fully in the Statement of Accounting Officer's Responsibilities, the Council and the Chief Executive, as Accounting Officer, are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. My responsibility is to audit, certify and report on the financial statements in accordance with the Science and Technology Act 1965. I conducted my audit in accordance with International Standards on Auditing (UK and Ireland). Those standards require me and my staff to comply with the Auditing Practices Board's Ethical Standards for Auditors.

### Scope of the audit of the financial statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of: whether the accounting policies are appropriate to Engineering and Physical Sciences Research Council's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the Engineering and Physical Sciences Research Council; and the overall presentation of the financial statements. In addition I read all the financial and non-financial information in the Annual Report to identify material inconsistencies with the audited financial statements and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge acquired by me in the course of performing the audit. If I become aware of any apparent material misstatements or inconsistencies I consider the implications for my certificate.

I am required to obtain evidence sufficient to give reasonable assurance that the expenditure and income recorded in the financial statements have been applied to the purposes intended by Parliament and the financial transactions recorded in the financial statements conform to the authorities which govern them.

### Opinion on regularity

In my opinion, in all material respects the expenditure and income recorded in the financial statements have been applied to the purposes intended by Parliament and the financial transactions recorded in the financial statements conform to the authorities which govern them.

### Opinion on financial statements

In my opinion:

- the financial statements give a true and fair view of the state of the Engineering and Physical Sciences Research Council's affairs as at 31 March 2017 and the net expenditure for the year then ended; and
- the financial statements have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State directions issued thereunder.

# Parliamentary Accountability and Audit Report

## Opinion on other matters

In my opinion:

- the parts of Remuneration and Staff Report and the Parliamentary Accountability Report disclosures to be audited have been properly prepared in accordance with Secretary of State directions made under the Science and Technology Act 1965; and
- the information given in Performance Report and Parliamentary Accountability Report for the financial year for which the financial statements are prepared is consistent with the financial statements.

## Matters on which I report by exception

I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- adequate accounting records have not been kept or returns adequate for my audit have not been received from branches not visited by my staff; or
- the financial statements and the parts of the Remuneration and Staff Report and the Parliamentary Accountability disclosures to be audited are not in agreement with the accounting records and returns; or
- I have not received all of the information and explanations I require for my audit; or
- the Governance Statement does not reflect compliance with HM Treasury's guidance.

## Report

I have no further observations to make on these financial statements.

**Sir Amyas C E Morse**  
Comptroller and Auditor General  
5 July 2017

National Audit Office  
157-197 Buckingham Palace Road  
Victoria  
London SW1W 9SP

# Financial Statements

## Statement of Comprehensive Net Expenditure

For the year ended 31 March 2017

Expenditure	Note	2016-17	Re-represented
		£000	2015-16 £000
<b>Total Operating Income</b>	<b>6</b>	<b>(27,962)</b>	<b>(28,193)</b>
Staff costs	3	13,244	11,787
Purchase of Goods and Services	5	9,738	8,912
Depreciation and Impairment Charges		9,806	9,665
Research and Development	4	932,755	902,413
Notional Service Charges	2	2,521	2,769
Other Operating expenditure		(6)	-
<b>Total Operating Expenditure</b>		<b>968,058</b>	<b>935,546</b>
<b>Net Operating Expenditure</b>		<b>940,096</b>	<b>907,353</b>
Movement of Net (gain)/loss on revaluation of non-current assets		(589)	(291)
<b>Total Comprehensive Expenditure for the Year</b>		<b>939,507</b>	<b>907,062</b>

The notes on pages 72-86 form part of these accounts.

2015-16 statements have been re-classified in line with HM Treasury's NDPB Green – Illustrative Accounts. This aligns the presentation of EPSRC's accounts with BEIS and its other partner organisations, this reflects in the primary statements and the disclosure notes.

# Financial Statements

## Statement of Financial Position

As at 31 March 2017

	Note	2016-17 £000	Re-represented 2015-16 £000
<b>Non-Current Assets</b>			
Property, Plant and Equipment	7	11,976	21,001
Intangible Assets		113	219
<b>Total Non-Current Assets</b>		<b>12,089</b>	<b>21,220</b>
<b>Current Assets</b>			
Assets Held for Sale	9	-	6
Trade and Other Receivables	9	21,030	23,963
Cash and Cash Equivalents	10	23,201	12,652
<b>Total Current Assets</b>		<b>44,231</b>	<b>36,621</b>
<b>Total Assets</b>		<b>56,320</b>	<b>57,841</b>
<b>Current Liabilities</b>			
Trade and Other Payables	11	(49,397)	(39,172)
<b>Total current Liabilities</b>		<b>(49,397)</b>	<b>(39,172)</b>
<b>Total Assets less Current Liabilities</b>		<b>6,923</b>	<b>18,669</b>
<b>TaxPayers' Equity and Other Reserves</b>			
General Fund		(4,598)	(16,699)
Revaluation Reserve		(2,325)	(1,970)
<b>Total Taxpayers Equity</b>		<b>(6,923)</b>	<b>(18,669)</b>

The notes on pages 72 to 86 form part of these accounts.



**Professor Philip Nelson**, Accounting Officer

22 June 2017

## Statement of Cash Flows

For the year ended 31 March 2017

		2016-17	Re-represented 2015-16
	Note	£000	£000
<b>Cash Flows from Operating Activities</b>			
Net Operating Expenditure for the year		(940,096)	(907,353)
Adjustment for Non-Cash Transactions		9,806	9,665
(Gains)/Loss from asset disposal		(6)	-
(Increase)/Decrease in Trade and Other Receivables	9	2,933	2,161
Increase/(Decrease) in Trade and Other Payables	11	10,225	(11,139)
Use of Provisions		-	-
<b>Net Cash Outflow from Operating Activities</b>		<b>(917,138)</b>	<b>(906,666)</b>
<b>Cash Flows from Investing Activities</b>			
Purchase of Property, Plant and Equipment		(86)	-
Purchase of Intangible Assets		-	(14)
Receipts from Disposal of Assets		12	-
<b>Total Cash Flow from Investing Activities</b>		<b>(74)</b>	<b>(14)</b>
<b>Cash Flows from Financing Activities</b>			
Grant in Aid received from BEIS		925,240	902,562
Notional Service Charges		2,521	2,769
<b>Net Financing</b>		<b>927,761</b>	<b>905,331</b>
Net Increase/(Decrease) in Cash and Cash Equivalents in the period		10,549	(1,349)
Cash and Cash Equivalents at the beginning of the period	10	12,652	14,001
Cash and Cash Equivalent at the end of the period	10	23,201	12,652

The notes on pages 72 to 86 form part of these accounts.



## Statement of Changes in Taxpayers' Equity

### For the year ended 31 March 2016

	Note	Re-represented		Total Reserves £000
		General Reserve £000	Revaluation Reserve £000	
<b>Balance at 1 April 2015</b>		18,633	1,767	20,400
Grant in Aid received from BEIS		902,562	-	902,562
Net Expenditure for the year		(907,353)	-	(907,353)
Notional Service Charge		2,769	-	2,769
Transfer between Reserves		88	(88)	-
Movement of Net (gain)/loss on revaluation of non-current assets		-	291	291
<b>Balance at 1 April 2016</b>		<b>16,699</b>	<b>1,970</b>	<b>18,669</b>

### For the year ended 31 March 2017

	Note	Re-represented		Total Reserves £000
		General Reserve £000	Revaluation Reserve £000	
<b>Balance at 1 April 2016</b>		16,699	1,970	18,669
Grant in Aid received from BEIS		925,240	-	925,240
Net Expenditure for the year		(940,096)	-	(940,096)
Notional Service Charge		2,521	-	2,521
Transfer between Reserves		234	(234)	-
Movement of Net (gain)/loss on revaluation of non-current assets		-	589	589
<b>Balance at 1 April 2017</b>		<b>4,598</b>	<b>2,325</b>	<b>6,923</b>

The notes on pages 72 to 86 form part of these accounts.

# NOTES TO THE ACCOUNTS

## 1. Statement of Accounting Policies

### a. Basis of Accounting and Accounting Convention

The Accounts have been prepared in accordance with a direction given by the Secretary of State with the approval of HM Treasury in pursuance of Section 2 (2) of the Science and Technology Act 1965.

These financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) and meet the accounting and disclosure requirements of the Companies Act 2006 and the accounting and financial reporting standards issued or adopted by the International Accounting Standards Board as interpreted for Government use by the Financial Reporting Manual (FRM) and in so far as these requirements are appropriate. Where the FRM permits a choice of accounting policy, the accounting policy which is judged to be most appropriate to the particular circumstances of the EPSRC for the purpose of giving a true and fair view has been selected. The particular policies adopted by the Council are described below. They have been applied consistently in dealing with items that are considered material to the accounts. There was no material departure from IFRS or FRM in preparation of these statements.

As required by Section 393 (1) of the Companies Act 2006 the Accounting Officer has provided assurance that these statements give a true and fair view of the assets, liabilities, financial position and the comprehensive net expenditure of EPSRC.

These accounts have been prepared under the historical cost convention, modified to account for the revaluation of Non-Current Assets, where material.

The financial statements are presented in £ sterling and all values are rounded to the nearest thousand, except where indicated otherwise.

### Going Concern

EPSRC is dependent on funding from BEIS to meet liabilities falling due within future years. In March 2016 BEIS published The Allocation of Science and Research Funding 2016-17 to 2019-20, which shows continued funding for EPSRC for this period. On the basis of this publication, EPSRC has no reason to believe that future funding will not be forthcoming and therefore the accounts are produced on a going concern basis. Confirmation of the 2017-18 allocation was received from BEIS in March 2017 detailing the EPSRC ring-fenced budgets.

The Higher Education & Research Bill received its first reading in May 2016 setting out the government's intention regarding the research council's future, with the creation of a single executive non-department public body operating at arm's length from Government – UK Research and Innovation (UKRI). The Bill states the Government will ensure the seven research discipline areas continue to have strong and autonomous leadership, and that UKRI will incorporate the assets, liabilities and functions of the seven Research Councils, Innovate UK, and HEFCE's research funding. The names and brands of the Research Councils and Innovate UK will be retained amongst a number of other protections. The bill received royal assent on the 27th April 17. On the strength of this information, the accounts have been prepared on a going concern basis.

### Adoption of Standards and Changes in Policy

There have been no FRM changes during 2016-17 that have impacted the accounts of EPSRC. However, in line with HM Treasury's Simplifying and Streamlining Annual Report and Accounts project, the 2016-17 financial statements have been represented in accordance with the NDPB Green – Illustrative Accounts issued by HM Treasury. This has resulted in the split between Administration and Programme income and expenditure being removed from financial statements and the headings used in the Statement of Comprehensive Net Expenditure following the format used in the Whole of Government Accounts. There is no impact on the overall net result for the year for the comparative figures.

# NOTES TO THE ACCOUNTS

## Effective for Future Financial Years

In accordance with FReM these accounts apply EU adopted IFRS and interpretations in place on 1 January 2016. These accounts have not applied the new IFRS 9: Financial Instruments, IFRS15: Revenue from contracts with Customers or IFRS16: Leases, Financial reporting Standards that have been issued but are not yet effective (IFRS 9 and IFRS 15 are anticipated to be adopted in the 2018-19 FReM) and the adoption date of IFRS16 is anticipated to be 2019-20 but is not yet endorsed by EU.

## b. Financing and Income

The FReM requires Non-Departmental Public Bodies to account for Grant-in-Aid as financing. In EPSRC's case this includes Grant-in-Aid from the Department for Business, Energy and Industrial Strategy.

Monies from other Research Councils for co-financing of various grant programmes are recognised as income when goods or services are delivered and title has passed, and charged to the Statement of Comprehensive Net Expenditure in the accounting period in which the goods or services are rendered.

The Council receives funding for collaborative projects to support EPSRC's research. The majority of this funding is received from the UK Public Sector. Some of the funding may involve payment for the collaboration a number of years in advance of the accounting period to which it relates. Where there is a variance between work done in the accounting period and received funding, income will be deferred where the contract or agreement allows.

## c. Non-Current Assets

### Property, Plant and Equipment (PPE)

Capital expenditure in PPE includes the purchase of IT equipment, office equipment, fixtures and fittings, construction and service projects, equipment and land and buildings valued at £10,000 or more.

PPE are included at cost or valuation. The basis of valuation is Open Market Value for existing use where this can be established, otherwise Current Depreciated Replacement Cost. A full month's depreciation is charged in the month of acquisition and none in the month of disposal.

Depreciation is not charged on assets under construction until the asset is brought fully into use and transferred to the appropriate asset category. They are then depreciated at the same rate as the other assets in that category.

Freehold Land	Not depreciated
Freehold Buildings	62 years
Specialist Scientific Equipment	3-15 years
IT Equipment	3 years
ARCHER	4 years
Fixtures and Fittings	5 years
Transport	4 years

Land and buildings, and major items of equipment are professionally revalued every five years at which time the remaining useful life of each revalued asset is also reassessed. The last valuation was in December 2015, conducted by GVA Grimley Ltd, using a fair value basis for the valuation. Appropriate indices are used between formal valuations.

### **Intangible Assets**

Capital expenditure on intangible assets includes the purchase of software, software licences, data sets and website development valued at £10,000 or more.

Amortisation of intangible assets is provided at rates calculated to write off the cost of each asset in equal instalments over its expected useful life as follows:

Software	3-5 years
Licences	Over length of licences
Websites	5 years

A full month's amortisation is charged in the month of acquisition and none in the month of disposal. Amortisation is not charged on assets under construction until the asset is brought fully into use and transferred to the appropriate asset category. They are then amortised at the same rate as the other assets in that category.

### **Equipment Located Elsewhere**

EPSRC owns assets that are located elsewhere but are included in the Statement of Financial Position.

This figure includes the ARCHER supercomputing facility. Also a pool of scientific equipment is provided and updated by the Science and Technology Facilities Council (STFC) on behalf of EPSRC, specifically for loan to research organisations. Wherever located, this equipment remains the property of EPSRC and is therefore included in the Statement of Financial Position.

### **Impairment of Non-Current Assets**

Impairment losses not resulting from a loss of economic value or service potential are taken to the Revaluation Reserve to the extent that there is a credit in that reserve for that asset or portfolio of assets. Impairment losses that arise from a clear consumption of economic benefit are charged to the Statement of Comprehensive Net Expenditure. Increases in value arising on revaluation are taken to the Revaluation Reserve except when they reverse an impairment for the same asset previously recognised in expenditure, in which case they are credited to the extent of the decrease previously charged there.

### **d. Subsidiaries and Joint Arrangements**

EPSRC has no subsidiaries or interest in joint arrangements. The Alan Turing Institute (ATI) is no longer considered a subsidiary as EPSRC does not have control of the Institute and no right to the net assets of the charity.

### **e. Ownership of Equipment or Facilities Purchased with Council Grants**

Equipment purchased by an organisation with research grant funds supplied by EPSRC belongs to the organisation and is not included in the EPSRC's property, plant and equipment. Through the conditions of grant applied to funded organisations, EPSRC must be informed if, during the life of the research grant, the need for the equipment diminishes substantially or it is not used for the purpose for which it was funded. EPSRC reserves the right to determine the disposal of such equipment and to claim the proceeds of any sale.

### **f. Grants**

Subject to the terms and conditions under which research grants are awarded, EPSRC makes payments for grants on the basis of pre-determined quarterly profiles. Profiles are arranged, in overall terms, to reflect the rate and incidence of expenditure at the grant holding organisation. Payments are normally made in the period to which they relate, although EPSRC retains some latitude in timing. Grant expenditure is accounted for on an accruals basis to reflect the usage of grant funds on work carried out. Future commitments at the Statement of Financial Position date are disclosed in Note 12.

EPSRC's policy is to accrue for the costs of work undertaken at Higher Education Institutions which remain unpaid by EPSRC at the end of the reporting period. Prepayments are also recognised when they occur.

### **g. Financial Instruments**

Due to the non-trading nature of its activities and the way in which EPSRC is financed, EPSRC is not exposed to the degree of financial risk faced by non-public sector entities. Moreover, financial instruments play a much more limited role in creating or changing risk that would be typical of listed companies. EPSRC has very limited powers to borrow or invest surplus funds. Financial assets and liabilities are generated by day to day operational activities and are not held to change the risks facing EPSRC in undertaking its activities.

#### **Trade Receivables**

Trade receivables are not interest bearing and are carried at original invoice amount. Provision for impairment is established when there is objective evidence that EPSRC will not be able to collect all amounts due according to the original terms of the receivable. The amount of provision is the difference between the carrying amount and recoverable amount and is recognised in the Statement of Comprehensive Net Expenditure.

#### **Trade Payables**

Trade and other payables are recognised in the period in which related money, goods or services are received or when a legally enforceable claim against EPSRC is established or when the corresponding assets or expenses are recognised.

### **h. Accounting Estimates and Judgements**

The preparation of financial statements requires management to make estimates and assumptions. These affect the reported amounts of assets and liabilities; the disclosure of contingent assets and liabilities at the date of the financial statements; and the reported amounts of revenues and expenses during the reporting period.

On an ongoing basis, management evaluates its estimates and judgements. These estimates and judgements are based on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about the carrying value of assets and liabilities that are not readily available from other sources. Actual results may differ from these estimates under different assumptions and conditions.

#### **i. Value Added Tax (VAT)**

As EPSRC is partially exempt for VAT purposes, irrecoverable VAT is charged to the relevant expenditure category or included in the capitalised purchase cost of property, plant and equipment. Where output tax is charged or input tax is recoverable the amounts are stated net of VAT. EPSRC has charitable status for VAT purposes

#### **j. Pension Costs**

Retirement benefits to employees of the Council are provided by the Research Councils' Pension Scheme (RCPS) and the Prudential and Scottish Widows Pension Scheme. The expected costs of providing pensions are charged to the Statement of Comprehensive Net Expenditure so as to spread the cost over the service lives of employees in the schemes operated, in such a way that the pension cost is a substantially level percentage of current and expected future pensionable payroll. More details on pensions can be found in the Remuneration and Staff Report.

#### **k. Early Departure Costs**

The costs of early retirement or severance are charged to the Statement of Comprehensive Net Expenditure when the early departures are agreed. These costs are net of the lump sums recoverable from the pension schemes when the individual reaches normal retirement age.

#### **l. Notional Service Charge**

Ownership of UK SBS transferred from the Research Councils to BEIS on 6 March 2013. The UK SBS monthly service charge to EPSRC is now deducted from EPSRC's funding from BEIS. In order to accurately reflect the cost of using UK SBS's services in the annual accounts the charge has been shown as a notional cost on the Statement of Comprehensive Expenditure and it has then been written back to the Income and Expenditure Reserve.

## 2. Statement of operating costs by operating segment

Segmental Analysis - This Financial Year	Research £000	Postgraduate £000	Other Programmes £000	Administration £000	2016-17 Total £000
Income	(21,686)	-	(4,335)	(1,941)	(27,962)
Staff Costs	-	-	5,448	7,796	13,244
Purchase of Goods and Services	-	-	2,970	6,768	9,738
Depreciation and Impairment Charges	-	-	9,528	278	9,806
Research and Development	704,728	225,901	2,126	-	932,755
Notional Service Charge	-	-	-	2,521	2,521
Other Operating Expenditure	-	-	-	(6)	(6)
<b>Total Operating Expenditure</b>	<b>683,042</b>	<b>225,901</b>	<b>15,737</b>	<b>15,416</b>	<b>940,096</b>

Segmental Analysis - Prior Financial Year	Re-represented				2015-16 Total £000
	Research £000	Postgraduate £000	Other Programmes £000	Administration £000	
Income	(21,622)	(24)	(3,361)	(3,186)	(28,193)
Staff Costs	-	-	5,320	6,467	11,787
Purchase of Goods and Services	-	-	3,111	5,801	8,912
Depreciation and Impairment Charges	-	-	9,421	244	9,665
Research and Development	665,671	*236,152	590	-	902,413
Notional Service Charge	-	-	-	2,769	2,769
<b>Total Operating Expenditure</b>	<b>644,049</b>	<b>236,128</b>	<b>15,081</b>	<b>12,095</b>	<b>907,353</b>

## 3. Staff Costs

	2016-17 £000	2015-16 £000
Wages and Salaries	10,342	9,290
Social Security Costs	801	560
Other Pensions Costs	2,101	1,937
<b>Total Staff Costs</b>	<b>13,244</b>	<b>11,787</b>

For further information on staff costs and numbers, please see the Remuneration and Staff Report on page 53.

\*Costs of postgraduate funding in 2015-16 included an element for the establishment of training centres.

#### 4a. Research

	2016-17 £000	2015-16 £000
Digital Economy	16,877	18,855
Energy	104,254	108,672
Global Uncertainties	5,461	8,351
Global Challenges Research Fund	9,900	-
Healthcare	59,368	59,858
Living With Environmental Change	5,567	5,772
Public Engagement Programme	-	2,102
Manufacturing	66,190	70,887
National Capability Engineering	70,671	73,034
National Capability ICT	68,316	71,771
National Capability Infrastructure	70,639	91,241
National Capability Mathematics	19,746	22,422
National Capability Physical Sciences	82,949	84,240
Impact Acceleration	21,553	-
Quantum Technology	18,099	19,166
The Alan Turing Institute	9,500	2,750
Sir Henry Royce Institute	21,010	-
UK Collaboratorium for Research in Infrastructure and Cities (UKCRIC)	16,724	-
Urban Living Partnership	1,021	-
Warwick Advanced Steel Research Hub	9,000	-
RCUK Research	1,341	-
RCUK Newton Activity	65	-
Newton	1,640	1,209
<b>Total Expenditure on Research</b>	<b>679,891</b>	<b>640,330</b>



#### 4b. Postgraduate Awards

	2016-17 £000	2015-16 £000
Collaborative Training Accounts	15,447	15,713
Doctoral Training Grants	66,342	87,672
Dorothy Hodgkin Postgraduate Awards	-	88
Centres for Doctoral Training	88,499	81,645
Other Awards	2,316	84
<b>Total Expenditure on Postgraduate Awards</b>	<b>172,604</b>	<b>185,202</b>

#### 4c. Energy Technologies Institute LLP

	2016-17 £000	2015-16 £000
ETI Energy	7,078	8,033
<b>Energy Technologies Institute LLP</b>	<b>7,078</b>	<b>8,033</b>

#### 4d. UK Research Facilities

	2016-17 £000	2015-16 £000
University of Edinburgh (ARCHER)	5,991	6,074
Science and Technology Facilities Council Facilities	2,498	2,566
Other Expenditure on Research Facilities	10,676	8,668
<b>Total Expenditure on UK Research Facilities</b>	<b>19,165</b>	<b>17,308</b>

#### 4e. Research Fellowships

	2016-17 £000	2015-16 £000
<b>EPSRC Fellowships</b>		
Early Career Fellowships	25,888	19,975
Post-Doctoral Fellowships	3,485	2,430
Established Fellowships	19,192	15,000
<b>Legacy Schemes</b>		
Academic	-	(18)
Post-Doctoral	81	146
Career Acceleration Fellowships	2,343	7,434
Leadership Fellowships	1,682	4,889
Other Fellowships	626	1,094
<b>Total Expenditure on Research Fellowships</b>	<b>53,297</b>	<b>50,950</b>

#### 4f. International Subscriptions

	2016-17 £000	2015-16 £000
<b>International Subscriptions</b>		
European Science Foundation (ESF)	94	79
International Fusion Research (ITER)	308	206
Institute des Hautes Etudes Scientifiques (IHES)	160	160
International Institute for Applied Systems Analysis (IIASA)	158	145
<b>Total Expenditure on International Subscriptions</b>	<b>720</b>	<b>590</b>
<b>Total Expenditure Research and Development</b>	<b>932,755</b>	<b>902,413</b>

## 5. Operating Expenditure

Purchase of Goods and Services	2016-17 £000	Re-represented 2015-16 £000
Rental under operating leases - Plant and Machinery	48	159
Accommodation	1,411	1,042
Professional Services	251	686
Consultancy	-	10
IT costs/ Support costs	1,006	930
Training and Other Staff costs	513	262
UK Travel & Subsistence	907	792
Overseas Travel & Subsistence	160	76
Advertising and Publicity	876	822
Audit Fees	68	68
Professional Subscriptions	191	223
Catering Services	424	495
Other costs	1,131	1,023
Other Audit costs	131	115
Outsourced Programme Management Services	2,621	2,209
<b>Total</b>	<b>9,738</b>	<b>8,912</b>

Please note that the notional service charge is made via an allocation reduction by BEIS.

## 6. Income

	2016-17 £000	Re-represented 2015-16 £000
Fee Income	(151)	(188)
Current Grants from Central Government	(10,599)	(7,946)
Current Grants from Private Sector Companies	(3,069)	(2,244)
Income from Other Governmental departments	(14,138)	(17,814)
Miscellaneous Income	(5)	(1)
<b>Total</b>	<b>(27,962)</b>	<b>(28,193)</b>

## 7. Property, Plant and Equipment

	Land £000	Buildings £000	IT £000	Plant & Machinery £000	Furniture & Fittings £000	Total £000
<b>Cost or Valuation</b>						
<b>At 1 April 2016</b>	<b>1,544</b>	<b>4,486</b>	<b>32,607</b>	<b>6,125</b>	<b>1,339</b>	<b>46,101</b>
Additions	-	-	-	-	86	86
Reclassifications	-	-	14	-	-	14
Disposal	-	-	(57)	(3,013)	(1,197)	(4,267)
Revaluations	18	49	1,745	60	2	1,874
<b>At 31 March 2017</b>	<b>1,562</b>	<b>4,535</b>	<b>34,309</b>	<b>3,172</b>	<b>230</b>	<b>43,808</b>
<b>Depreciation</b>						
<b>at 1 April 2016</b>	<b>-</b>	<b>882</b>	<b>17,734</b>	<b>5,218</b>	<b>1,266</b>	<b>25,100</b>
Charge in the year	-	145	9,128	405	34	9,712
Reclassifications	-	-	-	-	-	-
Disposal	-	-	(57)	(3,013)	(1,197)	(4,267)
Revaluations	-	9	1,227	50	1	1,287
<b>At 31 March 2017</b>	<b>-</b>	<b>1,036</b>	<b>28,032</b>	<b>2,660</b>	<b>104</b>	<b>31,832</b>
<b>Net book value at 31 March 2017</b>	<b>1,562</b>	<b>3,499</b>	<b>6,277</b>	<b>512</b>	<b>126</b>	<b>11,976</b>
<b>Cost or Valuation</b>						
<b>At 1 April 2015</b>	<b>1,824</b>	<b>3,680</b>	<b>32,707</b>	<b>6,155</b>	<b>1,345</b>	<b>45,711</b>
Additions	-	-	-	-	-	-
Reclassifications	-	-	-	(76)	-	(76)
Disposal	-	-	-	-	(7)	(7)
Impairments	-	-	-	-	-	-
Revaluations	(280)	806	(100)	46	1	473
Transfers	-	-	-	-	-	-
<b>At 31 March 2016</b>	<b>1,544</b>	<b>4,486</b>	<b>32,607</b>	<b>6,125</b>	<b>1,339</b>	<b>46,101</b>
<b>Depreciation</b>						
<b>At 1 April 2015</b>	<b>-</b>	<b>603</b>	<b>8,791</b>	<b>4,781</b>	<b>1,244</b>	<b>15,419</b>
Charge in the year	-	123	8,951	471	28	9,573
Reclassifications	-	-	-	(70)	-	(70)
Disposals	-	-	-	-	(7)	(7)
Impairments	-	-	-	-	-	-
Revaluations	-	156	(8)	36	1	185
<b>At 31 March 2016</b>	<b>-</b>	<b>882</b>	<b>17,734</b>	<b>5,218</b>	<b>1,266</b>	<b>25,100</b>
<b>Net book value at 31 March 2016</b>	<b>1,544</b>	<b>3,604</b>	<b>14,873</b>	<b>907</b>	<b>73</b>	<b>21,001</b>

## 8. Financial Instruments

Requirements of EPSRC are met through Grant-in-Aid provided by the Department for Business, Energy and Industrial Strategy. Financial Instruments play a more limited role in creating and managing risk than would apply to a non-public sector body. The majority of Financial Instruments relate to contracts to buy non-financial items in line with EPSRC's expected purchase and usage requirements and therefore EPSRC is exposed to little credit, liquidity or market risk.

## 9. Trade Receivables and Other Current Assets

	<b>31 March 2017</b>	<b>Re-represented 31 March 2016</b>
<b>Amounts falling due within 1 year</b>	<b>£000</b>	<b>£000</b>
Trade Receivables	6,409	6,491
Prepayments and Accrued Income	14,597	17,459
Other Receivables	24	13
Assets Held for Sale	-	6
<b>Total Receivables</b>	<b>21,030</b>	<b>23,969</b>

## 10. Cash and Cash Equivalents

	<b>31 March 2017</b>	<b>31 March 2016</b>
	<b>£000</b>	<b>£000</b>
Balance at 1 April	12,652	14,001
Net change in cash and cash equivalents balance	10,549	(1,349)
<b>Balance at 31 March</b>	<b>23,201</b>	<b>12,652</b>

### The following balances at 31 March were held at:

Government Banking Service (GBS)	23,199	12,649
Commercial banks and cash in hand	2	3
<b>Total</b>	<b>23,201</b>	<b>12,652</b>

## 11. Trade Payables and Other Current Liabilities

Amounts falling due within 1 year	31 March 2017 £000	31 March 2016 £000
VAT	(195)	(39)
Trade Payables	(657)	(1,435)
Other Payables	(244)	(329)
Accruals and Deferred Income	(48,301)	(37,369)
<b>Total Payables</b>	<b>(49,397)</b>	<b>(39,172)</b>

## 12. Other Financial Commitments

	31 March 2017 £000	31 March 2016 £000
Not later than one year	910,153	760,411
Later than one year not later than five years	1,602,288	1,460,177
Later than five years	46,178	73,983
<b>Total</b>	<b>2,558,619</b>	<b>2,294,571</b>

EPSRC estimates that the future costs of research and training grants at 31 March 2017 are £2,559m. The payments to which EPSRC is committed, analysed by the period in which the commitment expires are shown above.

### 13. Related Party Transactions

EPSRC is a Non Departmental Public Body sponsored by BEIS. It complied with the International Accounting Standard on Related Party Transactions (IAS 24) as amended for Central Government use by HM Treasury.

For the purpose of IAS 24, BEIS and its partner organisations are regarded as related parties. During the year, EPSRC has had various material transactions with BEIS and with other entities for which BEIS is regarded as their parent department, as follows: Arts and Humanities Research Council; Biotechnology and Biological Sciences Research Council; Economic and Social Research Council, Innovate UK; Medical Research Council; Natural Environment Research Council; Science and Technology Research Council; UK Space Agency; UK AEA. In addition, EPSRC has had various material transactions with the UK Shared Business Services Limited (formerly Research Councils' Shared Services Centre).

These Accounts provide disclosure of all material financial transactions in relation to the following individuals/groups:

- EPSRC senior executive staff
- EPSRC Council members
- EPSRC Audit and Risk Committee members.

#### Table A

This table shows where an Individual has a direct interest in an award, the total award value has been disclosed.

<b>Council members</b>	<b>Institution</b>	<b>Number of awards</b>	<b>Total award value £000</b>
Professor Muffy Calder	University of Glasgow	2	7,818
Professor Richard Jones	University of Sheffield	2	639
Professor Matthew Rosseinsky	University of Liverpool	3	8,712

#### Table B

This table shows if a related party to the individual has a financial transaction with EPSRC.

<b>Senior Staff Member/Council Member/Advisory Board Members</b>	<b>Related Party</b>	<b>Amount £000</b>
Nil Return		

### Table C

This table outlines in year financial transactions with organisations where Council or Audit Committee Members hold a position of influence.

<b>Council Member</b>	<b>Institution</b>	<b>Aggregated Amount £000</b>
Professor Richard Jones	University of Sheffield	40,947
Dr Paul Golby	Aston University	1,967
Mr Richard Dale	University of Newcastle	18,943
Ms Jane Madeley	University of Leeds	27,027
Mr Andy Nield	University of Bristol	42,916
Professor Tim Jones	The Alan Turing Institute	9,081
Professor Philip Nelson	University of Southampton	47,832
Mr Stephen Hawker	University of Reading	2,892
Professor Muffy Calder	University of Glasgow	27,446
Professor Mark Smith	Lancaster University	8,690
Professor Tim Jones	Birmingham University	23,919
Professor Anthony Finkelstein	The Alan Turing Institute	9,081

### 14. Events after the Reporting Period

In accordance with the requirements of IAS10 'Events After the Reporting Period', events after the Statement of Financial Position are considered up to the date on which the Accounts are authorised for issue; this is interpreted as the same date as the date of the Certificate of the Comptroller and Auditor General.

On the 27th April 2017 the Higher Education and Research Bill received royal assent. This forms the basis of the formation of UKRI.