Nuclear Fission Portfolio Update and the Peer Review Process

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Agenda

1 EPSRC – an introduction

2 Nuclear Fission Portfolio and Funding Opportunities

3 Overview of Peer Review

UKRI Engineering and Physical Sciences Research Council

The UK Research and Innovation (UKRI) Family

We work with the government to invest over £7 billion a year in research and innovation by partnering with academia and industry to make the impossible, possible. We create **knowledge with impact**.

Engineering and Physical Sciences Research Council (EPSRC)

We are the main funding body for engineering and physical sciences research in the UK

By investing in research and postgraduate training, we are building the knowledge and skills base needed to address the scientific and technological challenges facing the nation that will contribute to the economic competitiveness of the UK and improve the quality of life of its people.

At any one time we are supporting a portfolio of research and training between £3-4 billion.

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EPSRC's Portfolio
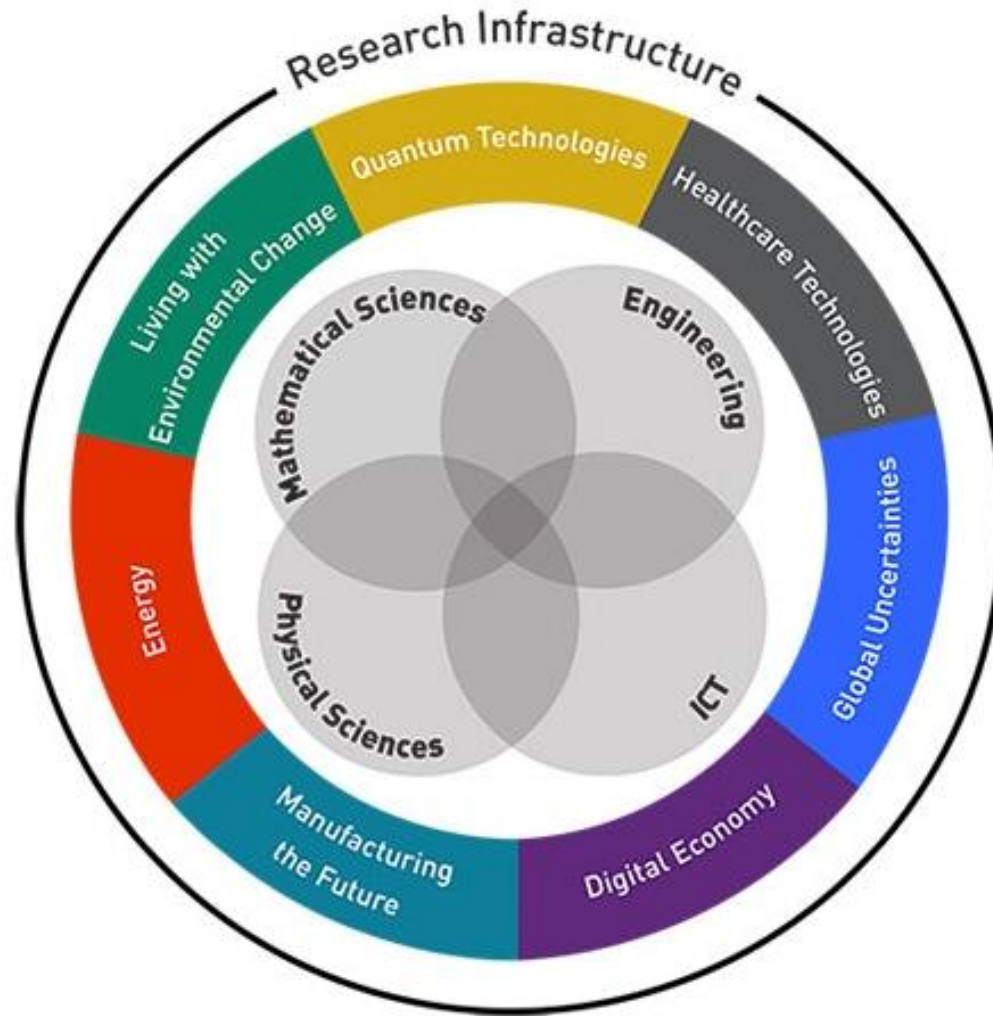
Energy Theme Mission

To support research and postgraduate training to tackle all elements of the energy 'trilemma'

Reduce emissions

Enhance security of supply

Reducing cost

News story

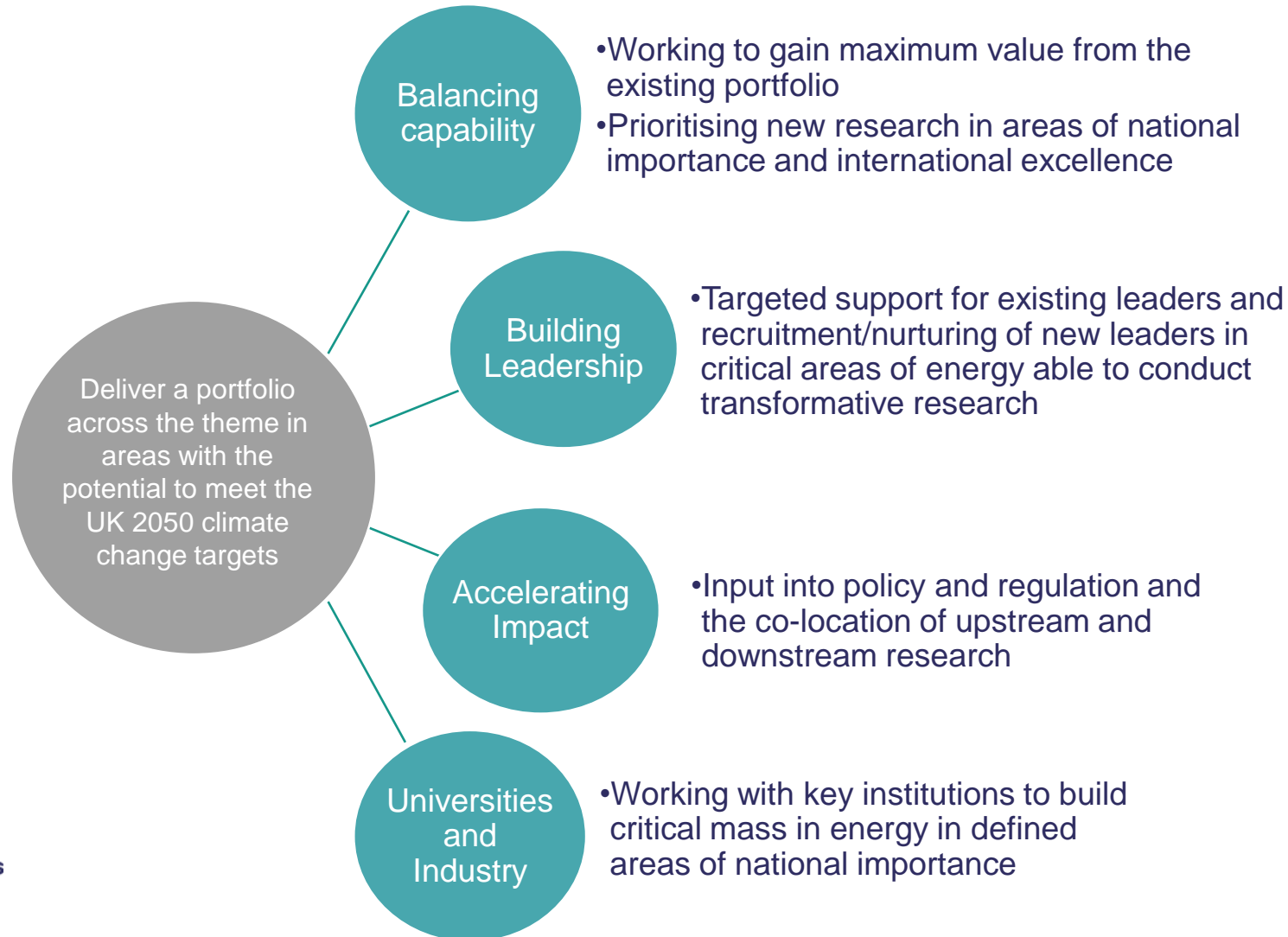## UK becomes first major economy to pass net zero emissions law

New target will require the UK to bring all greenhouse gas emissions to net zero by 2050.

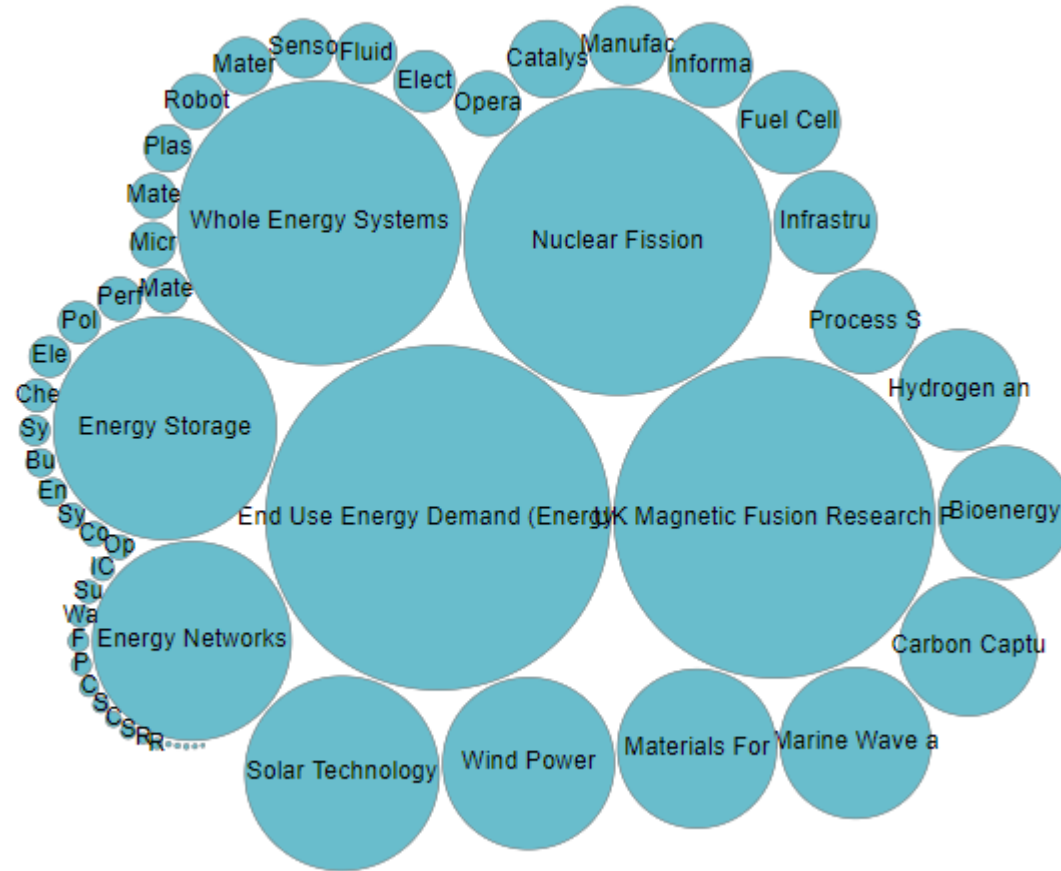Published 27 June 2019
From: Department for Business, Energy & Industrial Strategy and The Rt Hon Chris Skidmore MP

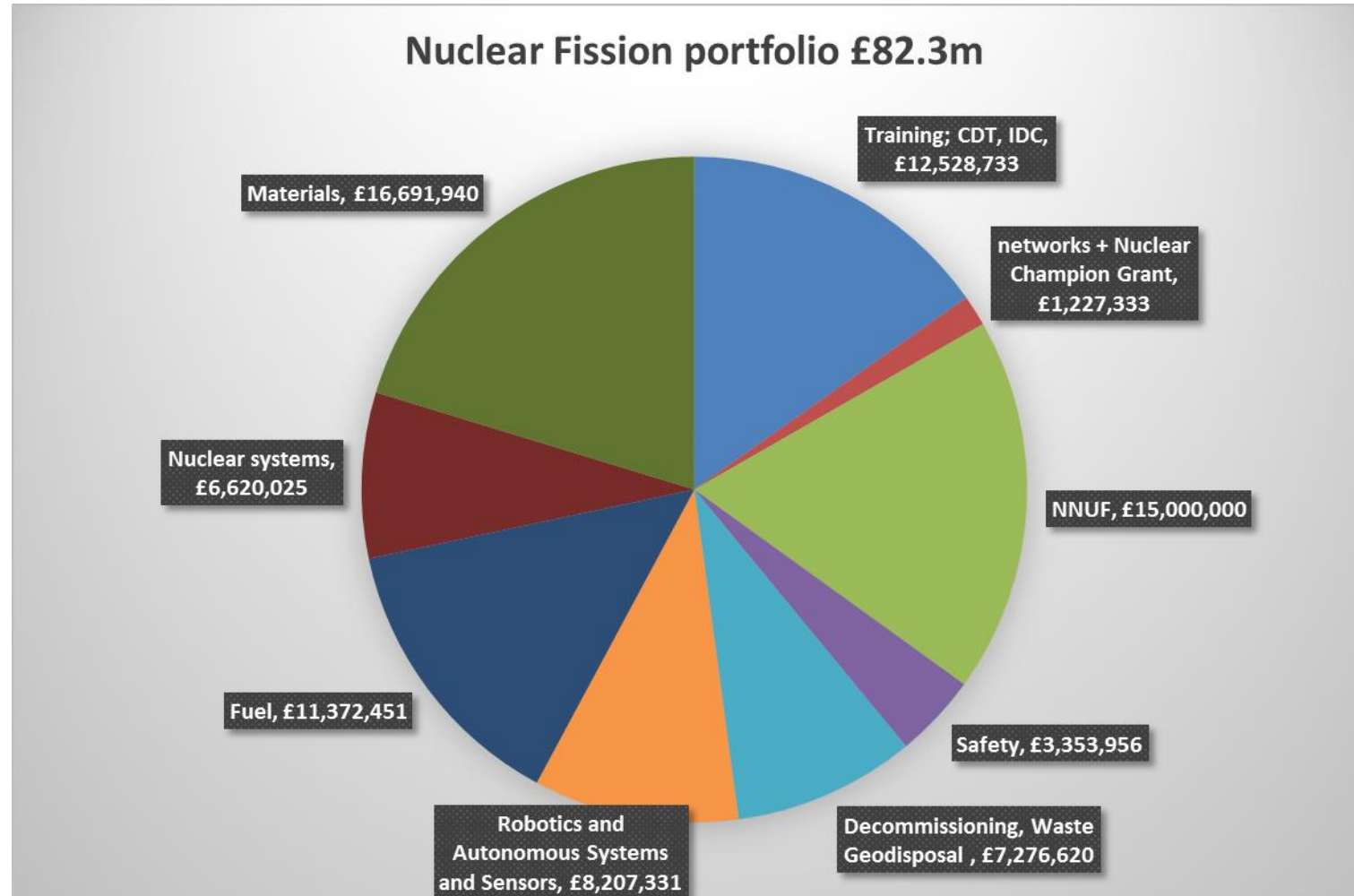Engineering and Physical Sciences Research Council

EPSRC Energy Theme objectives

Energy Theme – Visualising of Portfolio (VoP) Tool

Current Nuclear Portfolio

Nuclear Fission portfolio £82.3m

- Training; CDT, IDC, £12,528,733
- networks + Nuclear Champion Grant, £1,227,333
- Materials, £16,691,940
- NNUF, £15,000,000
- Nuclear systems, £6,620,025
- Safety, £3,353,956
- Fuel, £11,372,451
- Decommissioning, Waste Geodisposal , £7,276,620
- Robotics and Autonomous Systems and Sensors, £8,207,331

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Nuclear Fission Portfolio

Strategic Focus

- Depends on **Government** and **Industry** in terms of policy and national infrastructure.

- The **community** should be responsive to evolving needs and contribute to the decision-making processes. We look to engage with the community to develop ideas, raise awareness and disseminate strategic outputs

- We seek to maintain and develop an effective **international collaboration strategy** and invest in **research infrastructure requirements** (National Nuclear User Facility; NNUF) to accelerate the implementation of technologies.

- To maintain the UK's capabilities EPSRC will continue to identify and invest in **skill and training gaps.**

Portfolio challenges include:

Decommissioning and disposal, and legacy waste
Technological challenges for new nuclear build
Fuel reprocessing
Manage delivery of research infrastructure requirements
Reactor plant life extension
Materials
Public acceptability
Regulation

Review of fission and fusion research
2016 recommended prioritisation-
  Decommissioning
  Waste and spent fuels
  Next generation nuclear
  Plant life extension

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Nuclear Fission Funding Schemes

Standard Grants
- Responsive Mode/Standard Research
- Fellowships (Post-doc, early career, established career)
- New Investigator Awards
- OTGs/Visiting Fellowships
- Network Grants
- Prosperity Partnerships
- Programme Grants

Targeted calls

Training –

Doctoral Training Partnerships (DTP)

iCase Studentships

Centres for Doctoral Training
- Imperial College London
- University of Manchester

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Nuclear Fission Strategy and objectives

Critical mass investments

Programme Grants

|				
MIDAS - Mechanistic understanding of Irradiation Damage in fuel Assemblies	1 May 2019	30 Apr 2024	University of Manchester, The	£7,226,655.31
Robotics for Nuclear Environments	1 May 2017	30 Apr 2022	University of Manchester, The	£4,650,283.18
TRANSCEND: Transformative Science and Engineering for Nuclear Decommissioning	1 Oct 2018	30 Sep 2023	University of Leeds	£4,587,420.29
ATLANTIC: Accident ToLerANT fuels In reCycling	1 Dec 2018	30 Nov 2022	University of Leeds	£2,545,629.51

Prosperity Partnership

Delivering Enhanced Through-Life Nuclear Asset Management	1 Nov 2017	31 Oct 2022	University of Strathclyde	£2,160,697.88

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Funding Opportunities by career stage

Career Stage	On-going Funding Opportunities
PhD Students	Doctoral Prize (EPSRC funded only)
Postdoctoral Researchers	Postdoctoral Fellowship Researcher Co-I Named PDRA on an EPSRC grant
New Academics	New Investigator Award Early Career Fellowship Standard Grant
Early Career	Early Career Fellowship Standard Grant
Established Career	Established Career Fellowship Standard Grant Programme Grant

- Other grants are available; Overseas travel grants Network Grants and Workshop grants. (Apply via Standard Grant mode)

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International - India
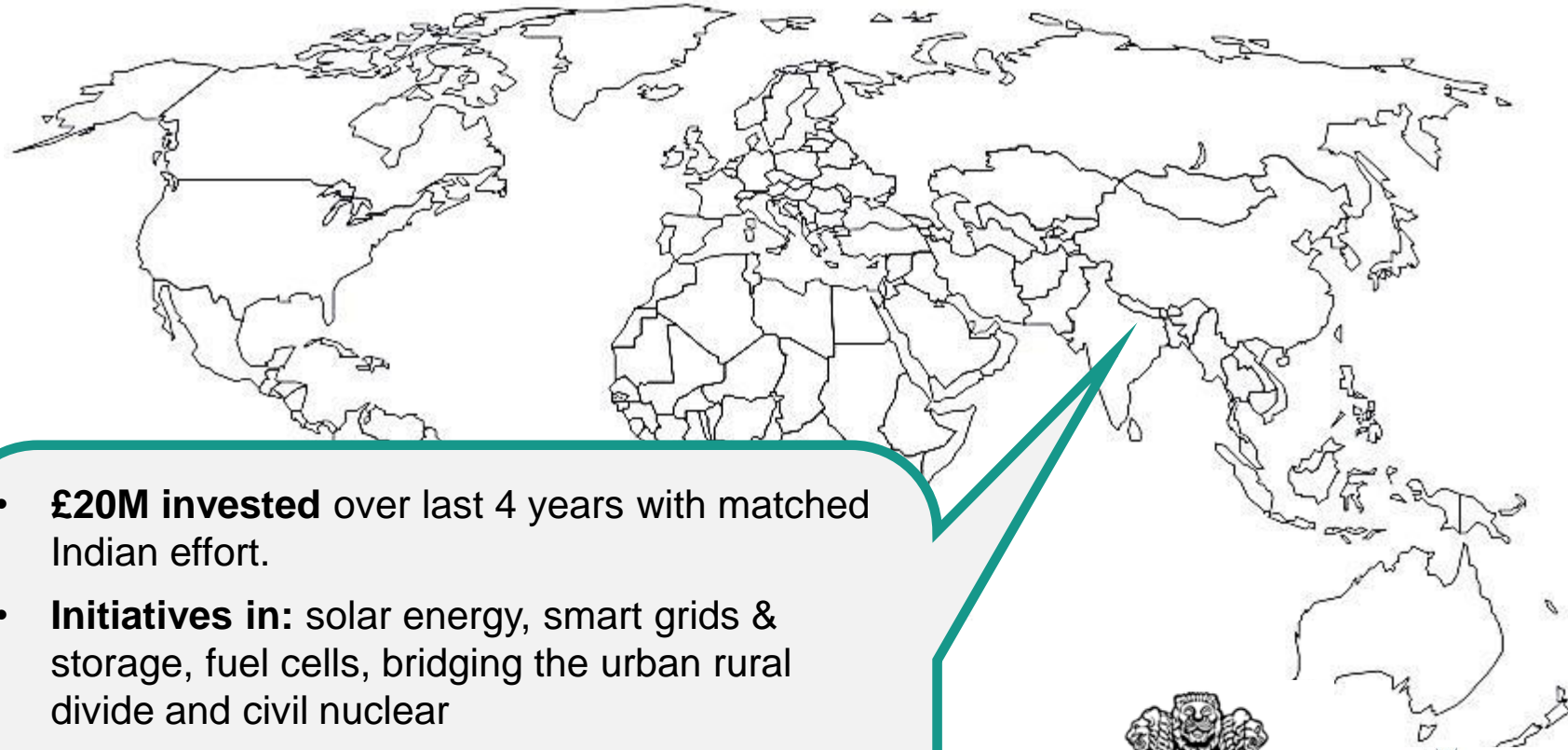
- **£20M invested** over last 4 years with matched Indian effort.

- **Initiatives in:** solar energy, smart grids & storage, fuel cells, bridging the urban rural divide and civil nuclear

- **Developing collaboration** with India in civil nuclear (with agreement from FCO) and joining Global Centre for Nuclear Energy Partnerships (GCNEP)
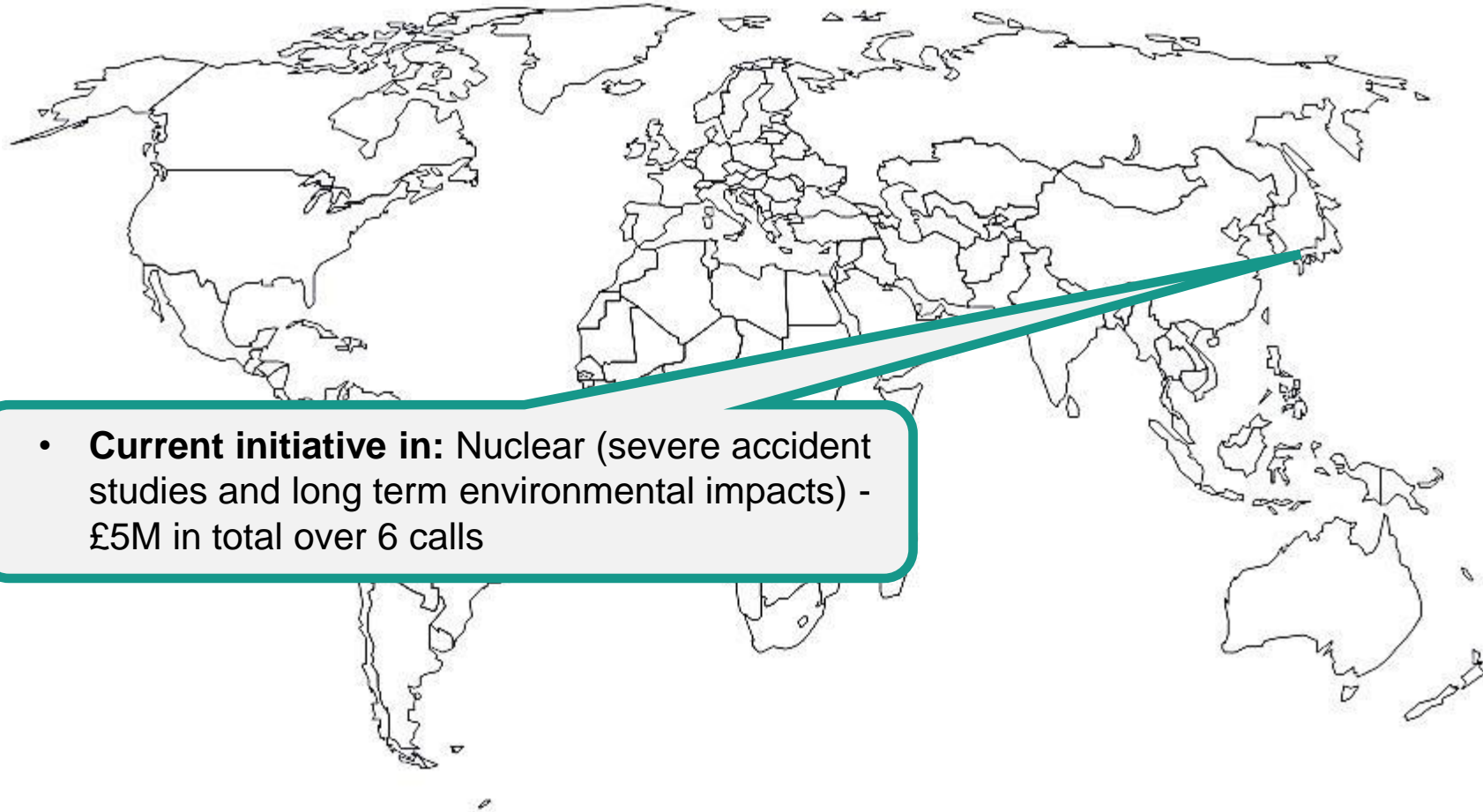
International - USA
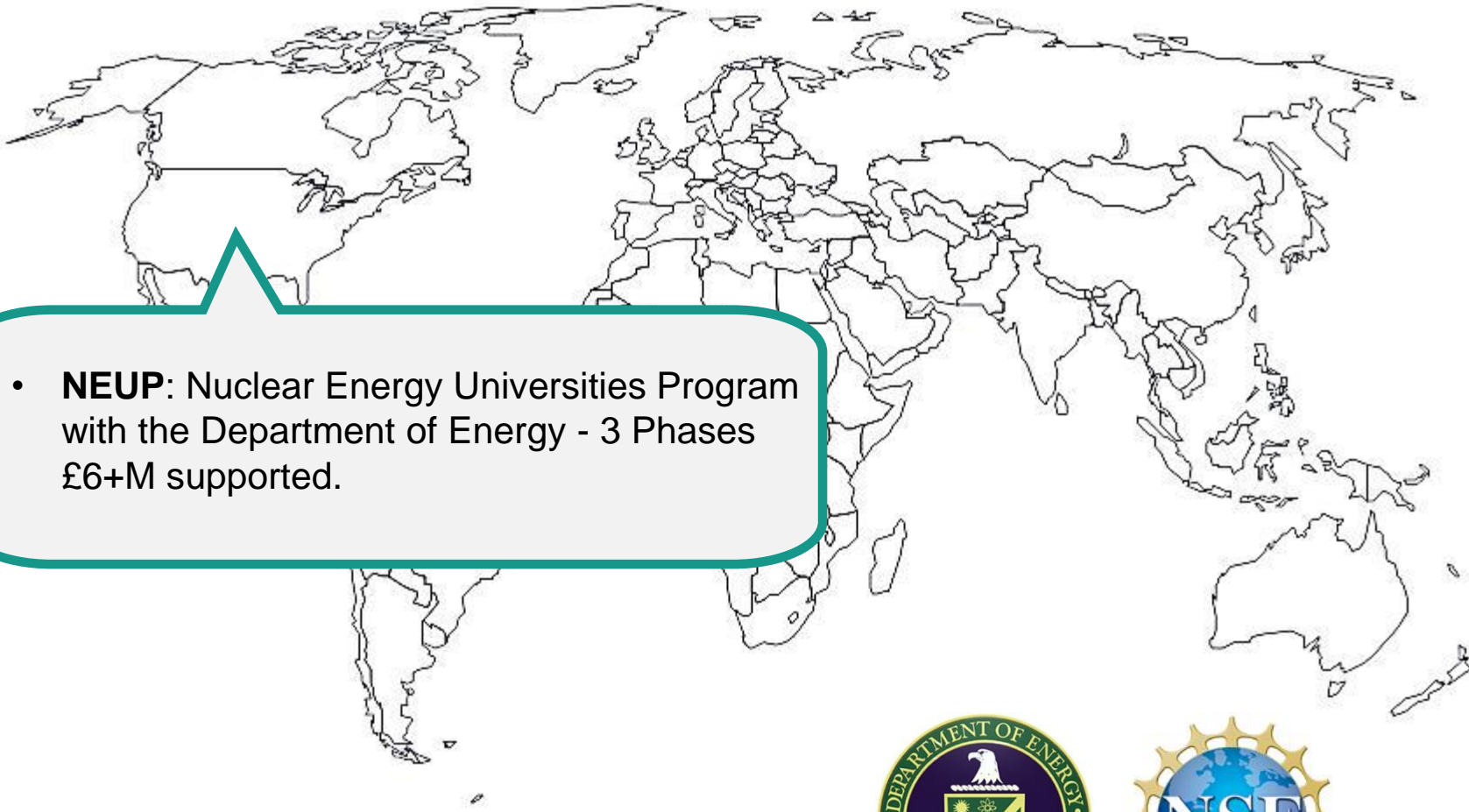
- **NEUP**: Nuclear Energy Universities Program with the Department of Energy - 3 Phases £6+M supported.
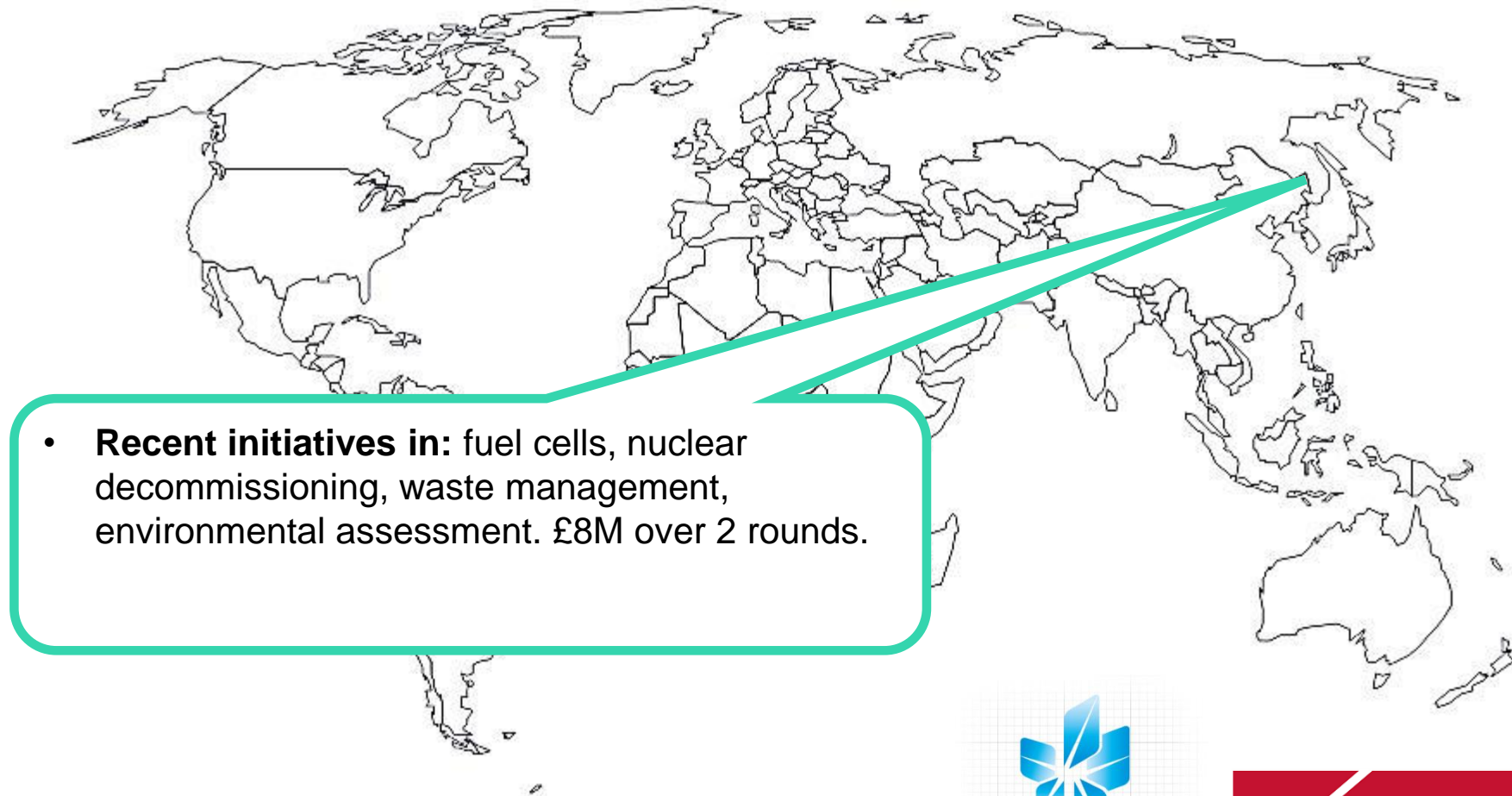
International - Japan

- **Current initiative in:** Nuclear (severe accident studies and long term environmental impacts) - £5M in total over 6 calls

International – Republic of Korea

- **Recent initiatives in:** fuel cells, nuclear decommissioning, waste management, environmental assessment. £8M over 2 rounds.

Future planned activities

2020

- NNUF Phase 2a assessment ongoing.

2021

- UK-US collaboration call opens Autumn 2021 c. £1.5m
- Support outcomes of UK US collaboration 2022
- Further UK Japan collaboration.
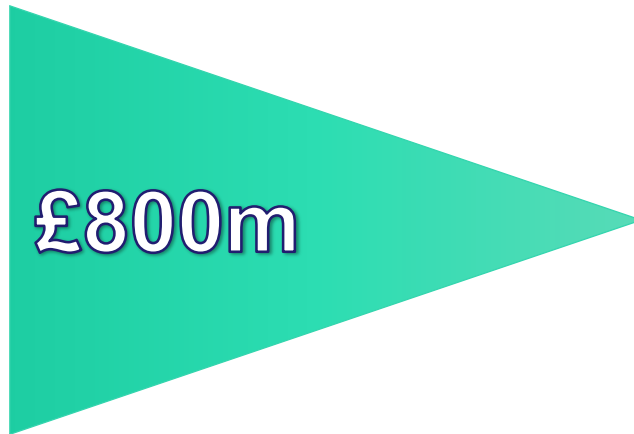
What is Peer Review for EPSRC?

- Process for judging proposals (research and training)

- Based on independent advice from other experts in the field

- Crucially underpins all EPSRC grant processing

£800m

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The role of EPSRC

- Own the process

- Facilitate reviewer and panel activity

- Ensure compliance with the rules

- Ensure fairness and transparency

  - UKRI principles of Assessment and Decision Making

- Make funding decisions based on peer review advice

| Confidentiality | Transparency | Appropriateness | Impartiality | Integrity and Ethics | Expert Assessment | Equality, Diversity and Inclusion | Separation of duties |

Peer review processes used will be unbiased and not influenced by gender, ethnicity or any other protected characteristic, demonstrating EPSRCs commitment to equality and diversity.

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Assessment Criteria

All proposals are assessed against the published assessment criteria.

The 4 Core EPSRC criteria are:

Quality/Excellence (Primary criteria)

Importance (Secondary Major criteria)

Applicant and Partnerships (Secondary criteria)

Resources and Management (Secondary criteria)

Some funding schemes and calls have different or additional criteria

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# EPSRC Peer Review Process

Role of Reviewers

- Experts in the field of the proposal (or in a particular part of the proposal)
- Advise on the strengths and weaknesses of the proposal based on the published criteria

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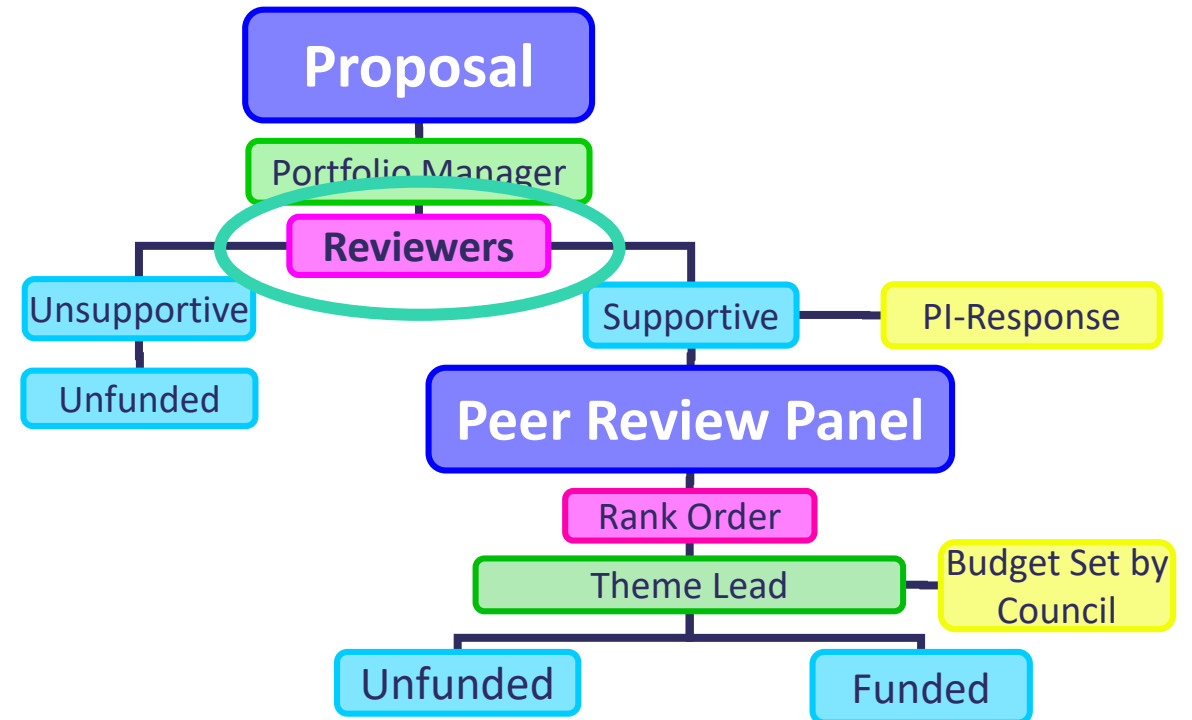
Role of the Panel

- Are expert within a broad area relevant to the proposals presented
- Assess the merits of each proposal based on the evidence:
  - On the basis of reviewer reports along with PI responses
  - NOT their personal opinion

- Post-panel
  - Priority for funding (rank order list)
  - Funding decision by budget holder
  - Outcomes – Grants on the web (GOW)
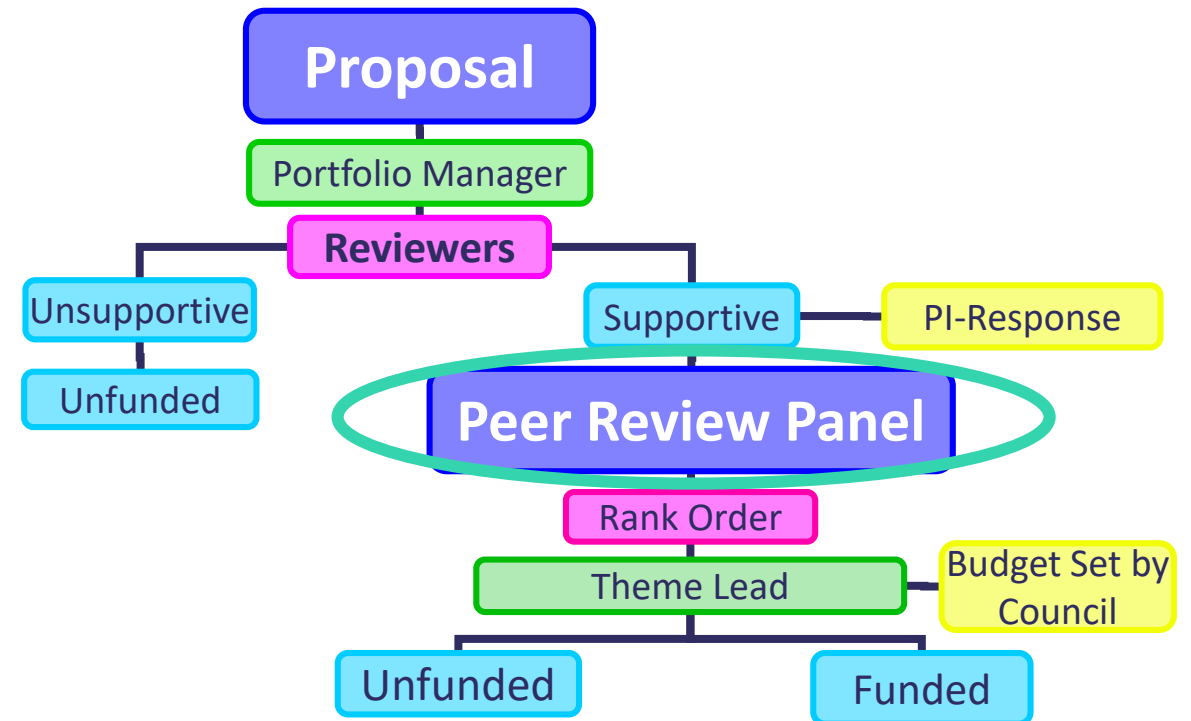
Proposal Tips

- Be **clear and structure your science case**: don't be vague about what you will be doing, address specific milestones & outputs.

- Where you plan to be flexible discuss some options and ways to **mitigate risk.**

- Include all the required documentation.

- HO letter: The best place for your research and your **chosen institution should fully back you** with appropriate support.

- Get your proposal reviewed by colleagues and **not just from your field**: have them use EPSRC reviewer forms (website) & do a mock interview.

  - Consider your audience:

  - EPSRC – general knowledge, need to understand to assign appropriate reviewers

  - Peer reviewers – expert knowledge in the field of the proposal

  - Panel – expert knowledge in general area where proposal sit

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Good proposals…

- Describe what excites you about your research and convey this to the audience
- Are about excellent research
  - **Quality** is the primary criterion
- Demonstrate the **capability** of the applicant.
- Show **novelty** and **added value.**
- Are **clear** about the ideas, methodology and work plan - not woolly or cluttered with jargon
- Pitch an **appropriate and realistic** degree of ambition
- Don't leave questions unanswered

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Peer Review College?

- ~5,800 individual researchers whose expertise between them covers all if the EPSRC remit

- Members are drawn from a range of organisations (UK and International):

  - Universities, Industry, Health Service, Government Laboratories, Charities
  - EDI compliant

- Provides the primary source of peer review advice for EPSRC

Provides quality assurance on aspects of the review process

Ensures a good coverage of all areas across the portfolio

How to join the college?

Six possible routes:

1. All new Fellows (excludes PDF) get automatic invite
2. EPSRC nominees (non-members with good peer review record)
3. Community nominates in response to EPSRC calls
4. Strategic Partner nominees (mainly user-based members)
5. International Partner nominees (overseas members)
6. Self nominees
7. High profile members of the Community

Peer review training provided

How to engage with EPSRC

- **Get to know EPSRC staff**, particularly relevant portfolio managers and heads of theme. Portfolio Managers are our main conduit between EPSRC themes and the research community and are responsible for managing the research area portfolios. They can answer many of your questions, provide good advice on EPSRC policy and processes. *See the EPSRC website for details of who's who.*

- **Get involved in Peer Review** (volunteer for the Peer Review College, help to Review proposals, sit on our panels).

- **Provide Strategic Advice** (i.e. Thematic strategic advisory teams, EPSRC Strategic Advisory Network, EPSRC Council). *Our open recruitment campaigns (annually for SATs) are announced on the EPSRC website.*

- **Influence the research agenda** (i.e. submit Big Ideas, attend Community Workshops, engage with EPSRC during university visits).

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https://epsrc.ukri.org/funding/   Funding

https://www.ukri.org/funding/how-to-apply/eligibility/   Funding Eligibility

https://gow.epsrc.ukri.org/   Grants on the Web

https://epsrc.ukri.org/funding/assessmentprocess/college/   Peer Review College

Thank you

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Questions?