National
Engineering
Policy Centre

Royal Academy
of Engineering

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National Engineering Policy Centre

2027 Strategy

Professor Catherine Noakes OBE FREng FIMechE, FIHEEM FCIBSE was a key member of the NEPC working group on Infection resilient environments. In the midst of the COVID-19 pandemic, the Government Chief Scientific Adviser Sir Patrick Vallance invited the Royal Academy of Engineering, together with the Chartered Institution of Building Services Engineers (CIBSE) and other partners in NEPC, to identify the interventions needed to reduce infection transmission in the UK's built environment. This work led to government changing its guidance on ventilation and creating a cross-government advisory group on the issue © thisisjude.uk

Vision

Engineering thinking is at the heart of policymaking, creating positive impacts for society.

Mission

The National Engineering Policy Centre marshals the nation's leading engineering expertise to provide practical policy advice on national and global challenges.

This paper sets out the National Engineering Policy Centre's by '2027 strategy'. NEPC partners have worked together over the course of a year to develop the National Engineering Policy Centre's first five-year strategy.

Why engineering policy matters

Engineering plays a vital role in informing and shaping policy issues of national and global importance.

Policymakers are tackling increasingly complex and interconnected challenges: for example, upgrading the country's critical infrastructure, addressing the challenges of climate change or building resilience against future crises.

Engineers are well placed to bring practical solutions and a systems approach: to help policymakers address challenges.

Policymakers look for external advice: to access in-depth and impartial expertise across industry, academia and the public sector and to convene cross-sector insights.

Policymakers need access to the breadth and depth of the engineering profession: the engineering profession reflects the rich variety of roles engineering plays in our lives, with a wide range of expertise, perspectives and specialisms across this broad field.

The National Engineering Policy Centre was created to marshal the full breadth of the nation's leading engineering expertise to provide practical policy advice on national and global challenges.

Since the launch of the Centre in 2019, the 42 partners have deployed their expertise to provide rapid policy advice on urgent issues, and deep insight on long term challenges. Building on these strong foundations, the Centre is now ready to reinforce its mission and establish stronger ambitions to build the capacity of the profession to advise decision makers and provide an effective means for government to access the widest range of engineering expertise.

By pursuing that mission the NEPC will bring engineering thinking to the heart of policymaking, creating positive impacts for society.

Four strategic priorities

By 2027, the National Engineering Policy Centre expects to have achieved the following strategic aims to deliver its mission and achieve its vision:

1 Deploy engineering insights

The heart of what we do is providing excellent advice which government can trust and which visibly improves outcomes.

2 Promote engineering and its role in policy

Engineers are well placed to help address policy challenges, and the NEPC promotes the practice of embedding engineering insights in the policy process.

3 Develop an inclusive and forward-looking partnership

The NEPC's effectiveness will be enhanced by engaging all the talents and perspectives available to us.

4 Extend our expert networks beyond engineering

Complex challenges require a systems approach, and we will collaborate with other disciplines and sectors to develop a holistic systems view.

Strategic Priorities

1 Deploy engineering insights

The heart of what we do is providing excellent advice which government can trust and which visibly improves outcomes. By 2027, the NEPC will:

- Have provided a **continuous stream of accessible, actionable and impactful outputs** that embraces proactive interventions and reactive demands from within government or the media.
- Have demonstrated and realised the **value of systems approaches** to address complex problems.
- Achieve results through policy recommendations that **influence policy decisions and set the engineering agenda**, based on the broadest possible partner contributions.

To achieve this, we will further develop our efforts to:

- Deploy responsive and proactive expert insights for decision-makers on current and emerging issues, in a timely, relevant, innovative, practical and valued manner.
- Demonstrate the universal application of engineering solutions to a wide range of complex problems.
- Consistently develop, use and promote systems approaches in our policy work.
- Engage and reach out to policymakers tackling interconnected challenges regionally, nationally and internationally

2 Promote engineering and its role in policy

Engineers are well placed to help address policy challenges, and the NEPC promotes the practice of embedding engineering insights in the policy process. By 2027, the NEPC will:

- Have engaged **more members of the engineering community in policy advice**.
- Have a sustained **national and international reputation** as a trusted and innovative contributor across a broad range of stakeholders who are facing complex problems across the policy spectrum.

To achieve this, we will:

- Further strengthen our policies and practices for our advice to be independent, authoritative and evidence based.
- Develop a public engagement plan, initially targeted towards the engineering community, including practitioners and students.
- Deepen and expand relationships with government across the UK, at central, devolved, regional and local levels.
- Increase international collaboration to bring a global perspective to policy challenges and opportunities to make our work internationally relevant.
- Contribute to the continuing development of a fit-for-the-future engineering education and skills ecosystem, enabling engineers to play their vital roles in society.

3 Develop an inclusive and forward-looking partnership

The NEPC's effectiveness will be enhanced by engaging all the talents and perspectives available to us. By 2027, the Centre will:

- Be recognised as a **dynamic partnership that speaks collectively** and draws upon the collective wisdom **from across the diversity of the engineering professions**.
- Be a model for its **inclusive working practices** and **effective, collaborative governance**.
- Have advanced **foresight on engineering policy issues** and be ahead of the policy agenda.
- Have developed actions on **equality, diversity, and inclusion within engineering policy**.

To achieve this, we will:

- Harness, respect and balance the diverse perspectives within the partnership's body of expertise.
- Promote equality, diversity and inclusion within our profession, our processes, and behaviours.
- Create an agile and responsive foresight function based on independent, authoritative, and evidence-based insights.
- Consider equality, diversity, and inclusion perspectives in our policy work.

4 Extend our expert networks beyond engineering

Complex challenges require a systems approach, and we will collaborate with other disciplines and sectors to develop a holistic systems view. By 2027, the NEPC will:

- Be established as a **thought leader that has brought the engineering community together, connecting engineers within a diverse community of partners, beyond the Policy Centre itself**.
- Succeed in **placing engineering at the heart of policymaking**, creating positive impacts for a more equal society.

To achieve this, we will:

- Bring together the diverse perspectives needed to understand and address complex systems and challenges by reaching beyond engineering to a broader network of experts and stakeholders, regionally, nationally and internationally.
- Tackle a broad range of policy topics for an increasing variety of users.
- Strengthen the Centre's engineering identity while demonstrating the value of multi-disciplinarity.
- Engage with voices and expertise beyond engineering to better understand how engineering can tackle inequalities and better contribute to a more equal society globally.

Delivering and evaluating success

Professor Rebecca Lunn MBE FREng FRSE FICE, member of the NEPC's Net Zero Working Group

Over the strategy period, the partners of the National Engineering Policy Centre will develop its capacity for monitoring and evaluation. The following key metrics and qualitative measures will be adopted to assess progress and reported each year in an Annual Review.

1

Deploy engineering insights

- Number, significance and diversity of proactive and reactive outputs (e.g., reports, briefings, position papers, roundtables, showcases, consultation responses, etc.)
- Number, significance and diversity of commissions and requests received from government and the media.
- Evidence of advancing the use of systems approaches for addressing complex challenges, nationally and internationally.
- Case studies on the positive impact of our recommendations on policy and achieving a more equal society.

2

Promote engineering and its role in policy

- Number, significance and diversity of strategic external partnerships with engineering organisations.
- Evidence of advancing public engagement with engineering policy issues.
- Case studies on the geographic reach of our work regionally, nationally and internationally.

3

Develop an inclusive and forward-looking partnership

- Progress of inclusive ways of working in the partnership.
- Increase in the partners' relative contributions to the Policy Centre's activities.
- Evidence of the advancement of the equality, diversity and inclusion agenda and foresight in engineering policy.

4

Extend our expert networks beyond engineering

- Number, significance and diversity of strategic external partnerships with non-engineering organisations.
- Breadth and diversity profile of the engineering and non-engineering expertise used across all areas of work.

What is the National Engineering Policy Centre?

The National Engineering Policy Centre brings engineering thinking to the heart of policymaking, creating positive impacts for society.

Context

Engineering plays a vital role in informing and shaping policy issues of national and global importance.

Policymakers:

- are tackling increasingly complex and interconnected challenges
- look for external advice
- need access to the breadth and depth of the engineering profession.

Engineers:

- are well placed to bring practical solutions and a systems approach.

What is the National Engineering Policy Centre?

The NEPC is a partnership of 42 professional engineering organisations that cover the breadth and depth of our profession, led by the Royal Academy of Engineering. Together we provide insights, advice, and practical policy recommendations on complex national and global challenges.

Vision

Engineering thinking is at the heart of policymaking, creating positive impacts for society.

Mission

The NEPC marshals the nation's leading engineering expertise to provide practical policy advice on national and global challenges.

How does the National Engineering Policy Centre work?

Leadership and partnership

The Academy's Engineering Policy Centre Committee oversees the overall stewardship of the partnership.

The NEPC partners:

- contribute to working groups and nominate experts to oversee the production of outputs.
- provide experts, insights and resources to deliver work.
- convene regularly to develop collaboration in and inform the directions of the partnership.

Strategy 2022–2027

Our four strategic aims for 2027 are:

1. Deploying engineering insights
2. Promoting engineering and its role in policy
3. Developing an inclusive and forward-looking partnership
4. Extending our expert networks beyond engineering.

Outputs and activities of the National Engineering Policy Centre

- **A rolling portfolio of in-depth proactive work** including reports, briefings and events.
- **Commissions from Government** enquiries, responses to public consultations and rapid responses.
- **At the heart of all this is foresight**, so we can deliver practical insights quickly when these challenges arise.

Impact:

We have helped shape critical policy decisions that have made a difference to people's lives and the economy. Examples of recent impact are:

- **Achieving net zero**: we have been a key voice in encouraging policymakers nationally and internationally to take a systems approach and consider 'low regrets decision-making' to address this critical challenge.
- **Pandemic response**: our advice on ventilation during the COVID-19 pandemic helped shape the government's response.

The partners in the National Engineering Policy Centre

We are a partnership of 42 professional engineering organisations that cover the breadth and depth of our profession, led by the Royal Academy of Engineering.

BCS, The Chartered Institute for IT BCS is the professional body for the information technology profession. BCS engages in thought leadership, promoting the education and practice of computing for public good.

British Institute of Non-Destructive Testing (BINDT) Promoting the advancement of the science and practice of non-destructive testing (NDT), condition monitoring (CM), diagnostic engineering and all other materials and quality testing disciplines.

Chartered Association of Building Engineers CABE brings members together to create a community of like-minded professionals who believe in collaboration and communication. Focused on developing professionals, sharing knowledge, and raising standards.

Chartered Institution of Building Services Engineers (CIBSE) CIBSE is the professional engineering institution for building services. Our members design, install, operate, maintain and refurbish life safety and energy using systems installed in buildings.

Chartered Institute of Plumbing & Heating Engineering (CIPHE) The CIPHE is the UK's professional and technical body striving to raise standards of plumbing and heating for the public benefit.

Chartered Institution of Civil Engineering Surveyors (CICES) CICES is an international body for the regulation and training of civil engineering surveyors, with varying membership grades, plus competencies for geospatial engineers and commercial managers.

Chartered Institution of Highways and Transportation (CIHT) The Chartered Institution of Highways & Transportation (CIHT) provides strategic leadership and support to help our members develop, deliver and maintain sustainable solutions for highways, transport infrastructure and services.

Chartered Institution of Water and Environmental Management (CIWEM) CIWEM represents a community of thousands of members and organisations in over 89 countries, dedicated to improving water and environmental management for public benefit.

Energy Institute (EI) The chartered professional membership body for people who work in energy, creating a better future by accelerating the global energy transition to net zero.

Engineering Council Sets and maintains internationally recognised standards of engineering competence and commitment, holding the national register of professionally recognised engineers and technicians.

EngineeringUK EngineeringUK works in partnership to inspire the next generation of engineers and to better understand and address the barriers to participation in STEM education and training.

INCOSE UK INCOSE UK's aim is to foster the definition, recognition, understanding and practice of world class Systems Engineering in Industry, Academia and Government.

Institute of Acoustics (IOA) Institute of Acoustics, the professional body for those working in acoustics, noise and vibration. A specialisation covering diverse fields from building acoustics to sonar systems.

Institute of Explosives Engineers (IExpE) Institute of Explosives Engineers is a diverse membership base for anyone working in or connected with the explosives industry, providing membership categories for all levels and many member benefits.

Institute of Healthcare Engineering and Estate Management (IHEEM) IHEEM is the UK's largest independent professional body dedicated to supporting the development of healthcare engineers and estates and facilities professionals across all levels.

Institute of Highway Engineers (IHE) IHE membership formally recognises your qualifications and industry experience. We provide professional development opportunities, support and leadership for individuals to achieve and maintain professional recognition.

Institute of Marine Engineering, Science & Technology (IMarEST) The IMarEST is the international professional body and learned society for all marine professionals with a multi-disciplinary and worldwide membership, bringing together marine engineers, scientists and technologists.

Institute of Materials, Minerals and Mining (IOM3) The global network for the materials cycle, promoting sustainability and greater circularity in the extraction, processing and use of natural resources.

Institute of Measurement and Controi (InstMC) InstMC is a Professional Engineering Institute and international network of engineers and scientists working within the measurement, automation, and control fields.

Institute of Physics (IOP) The IOP is the professional body and learned society for physics in the UK and Ireland, promoting co-operation and accessibility in physics around the world.

Institute of Physics and Engineering in Medicine (IPEM) IPEM's mission is to improve health through Physics and Engineering in Medicine.

Institute of Water (IoW) A professional body dedicated to supporting the careers of people in the UK water sector, IWater enables our members to reach their full potential to drive the sector forward.

Institution of Agricultural Engineers (IAgrE) The Institution of Agricultural Engineers is the professional body for those working in engineering, science and technology within agriculture, the environment and the land-based sector.

Institution of Chemical Engineers (IChemE) The Institution of Chemical Engineers (IChemE) is the internationally recognised qualifying body and learned society for chemical, biochemical and process engineers.

Institution of Civil Engineers (ICE) The ICE is a membership organisation recognised for its excellence as a centre of learning, a public voice for the profession and a leading source of expertise in infrastructure policy.

Institution of Engineering and Technology (IET) The IET is one of the world's largest engineering institutions. We inspire, inform and influence the global engineering community to engineer a better world.

Institution of Engineering Designers (IED) The Institution of Engineering Designers is the professional membership and registration body for those working in engineering and product design.

Institution of Fire Engineers (IFE)
We are the global professional membership body for those in the fire sector that seek to increase their knowledge, professional recognition and understanding of fire.

Institution of Gas Engineers and Managers (IGEM) Supporting individuals and businesses working in the global gas industry to engineer a sustainable gas future; providing technical expertise, guidance and professional development services.

Institution of Lighting Professionals (ILP)
The Institution of Lighting Professionals is the professional membership body and technical learned society for those working in the lighting profession.

Institution of Mechanical Engineers (IMechE)
The IMechE is a global institution representing 112,000 engineers. Our goal is to maximise the impact of our members and improve the world through engineering.

Institution of Railway Signal Engineers (IRSE) The IRSE engages with a global network of railway signal and telecommunication engineers to develop and assure the highest standards of ethics, knowledge, competence, and safety in all aspects of train control.

Institution of Royal Engineers (InstRE)
A learned society that seeks to advance the art and science of military engineering by sharing experiences, best practice and emerging thinking.

Institution of Structural Engineers (IStructE)
IStructE is a leading professional body devoted to structural engineering with a worldwide membership. We support the profession in responding to the challenges of public safety and sustainability.

Nuclear Institute (NI) The Nuclear Institute is the professional membership body for anyone that works in, studies or has a general interest in, the nuclear industry.

Permanent Way Institution (PWI)
PWI serves engineers working with railway infrastructure. It collects and shares technical knowledge and best practice internationally, to increase skills, raise standards, and improve efficiency.

Royal Academy of Engineering (RAEng)
As the national academy for engineering, we provide progressive leadership for engineering and technology, and independent expert advice to government, in the UK and beyond.

Royal Aeronautical Society (RAeS)
RAeS is the learned and professional body for engineers and others across aerospace, space and aviation; dedicated to promoting the art and science of flight.

The Royal Institution of Naval Architects (RINA) The Royal Institution of Naval Architects is world renowned and advances the art and science of ship, boat and yacht design, construction, maintenance, and operations.

Safety and Reliability Society (SaRS)
Safety and Reliability Society is the professional body for safety, reliability, and risk management practitioners. We provide members with cross-industry learning, CPD and networking opportunities.

Society of Operations Engineers (SOE)
SOE is the professional home for those working to inspect, maintain and manage the equipment and machinery which keeps people and businesses safe on a daily basis.

The Welding Institute (TWI) TWI is a leading independent research and technology organisation, with expertise in materials, joining and structural integrity. We provide Members with advice, knowhow, and innovation.

Bernadette Kelly DCB, Permanent Secretary at the Department for Transports gave the keynote speech at the launch of the NEPC on 28 January 2019, together with Sir John Manzoni KCB, former Permanent Secretary for the Cabinet Office and Chief Executive of the Civil Service, Sana Kharegani, former Deputy Director and Head of the Office for Artificial Intelligence, a joint unit of BEIS and DCMS, Dr David Cleevely CBE FREng, Founding Director of the Centre for Science and Policy at the University of Cambridge, and Professor Dame Ann Dowling OM DBE FREng FRS FIMechE FIOA FRAeS HonFIED, former President of the Royal Academy of Engineering

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THE ROYAL ACADEMY OF ENGINEERING

The Royal Academy of Engineering is harnessing the power of engineering to build a sustainable society and an inclusive economy that works for everyone.

In collaboration with our Fellows and partners, we're growing talent and developing skills for the future, driving innovation and building global partnerships, and influencing policy and engaging the public. Together we're working to tackle the greatest challenges of our age.

Royal Academy of Engineering
Prince Philip House
3 Carlton House Terrace
London SW1Y 5DG

Tel 020 7766 0600 | www.nepc.raeng.org.uk
nepc@raeng.org.uk
@RAEngNews

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