



The Institution of
Engineering and Technology

Get ahead in the energy sector

with help from the IET

theiet.org/energy

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Evolving with your industry

The challenges facing the energy sector are profound. The energy system is undergoing a transformation that is simultaneously decarbonising, digitising, decentralising and becoming ever more driven by energy consumers' individual preferences.

We're moving from a world of stable market and regulatory frameworks that govern decision-making by a relatively small numbers of companies, to a world where millions of connected devices interact to create overall outcomes. On top of this, the task of achieving our climate change targets adds to this enormous and complex challenge for systems engineering.

We have brought together all of our activities and resources which relate to the energy sector. Whether you're working in industry, research, or you're studying, you'll find resources to keep pace with changes and move forwards in your career.

By joining a multidisciplinary, professional engineering institution such as the IET, you can keep up to date with industry developments, learn skills that are in demand and build your reputation in this dynamic and complex sector.

≡ Thought leadership

The IET is passionate about the challenge of moving to a low-carbon future. We focus on opportunities for engineering and technology in this innovative space and provide independent, impartial thought leadership on the subjects relevant today and in the future.

We bring together experts from industry, academia and government, in neutral environments to deliver programmes of activity, inspired by innovation across the energy sector from generation to distribution and beyond.

We achieve this thanks to the expertise of our volunteer-led Sector and Policy Panels of IET members and engineering practitioners.

To discover more about our expert energy panels, visit

theiet.org/energy



Engineering priorities for delivering net-zero

The UK is facing the most significant challenge it has ever encountered. The responsibility to drastically reduce our impact on the climate falls on all areas, industries and sections of society.

Decarbonising quickly and effectively to hit our net-zero target by 2050 requires urgent, clear and decisive leadership. It will require large-scale political and policy action and it will need a great number of actions to be taken simultaneously.

In this policy paper, we set out our engineering priorities for upcoming policy decisions that will allow the UK to achieve its net-zero target. These priorities are divided across transport, systems and infrastructure, sustainable manufacturing, efficiency and heat, and generation and storage.

To find out more about the report, visit theiet.org/net-zero



Engineering priorities for delivering net-zero

Transport Bring down costs, embrace technology and accelerate the mass roll out of clean transport solutions	Page 2
Systems and Infrastructure Eliminate silos imposed through current departmental, industry and regulatory structures to ensure the energy transformation is governed in a coherent and resilient way	Page 3
Sustainable Manufacturing Reduce the impact of industry through proactive resource productivity and efficiency measures to reduce environmental impact and save money	Page 4
Efficiency and Heat Roll out a nationwide programme of retrofit and establish a clear transition plan for the decarbonisation of heat	Page 5
Generation and Storage Support the urgent, large-scale testing and deployment of existing technologies and improve public engagement	Page 6

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Combine this with the increasing interconnectedness and complexity of infrastructure, and it is vital that a joined up, 'whole-system' approach is prioritised. The impact of the growth in electric transport for example, must be considered in conjunction with the future of heat, the decentralisation of energy and upgrades required to electricity infrastructure.

Engineers have the skills, insights and ingenuity to help tackle these challenges in ways that optimise efficiency, economy, safety and reliability. As engineers, we are problem solvers and innovators, with a unique perspective on the world. Most of these challenges are significant, long-term and require cross-government action. Engineering is central to delivering them.

Here we set out the Institution of Engineering and Technology's (IET) priorities for upcoming policy decisions for the UK to achieve net-zero. We will continue to work to ensure that the scale of the task is well understood, and that the UK has the vital engineering skills necessary to deliver change for generations to come. The understanding and articulation of these challenges will change over time, but the IET and the engineering profession stands ready to support delivering solutions to these challenges and ensuring a safer and more sustainable future for us all.

The Institution of Engineering and Technology is one of the world's leading professional engineering institutions. We provide independent, impartial and expert advice. We represent over 140,000 engineers in more than 150 countries, across multiple sectors including Energy, the Built Environment, Transport, Manufacturing and Digital.

theiet.org/impact-society

Future Power System Architecture (FPSA)

The Future Power System Architecture (FPSA) programme is an ongoing collaboration between the IET and the Energy Systems Catapult (ESC).

We believe there is a responsibility on all of us to extract learning from the tragedy of COVID-19 and to use it to plan the UK's recovery for a safer, more sustainable future.


The pandemic has dramatically shown how interconnected our world is, internationally and locally. We need Whole System Engineering for economic and sustainable growth. The UK must learn lessons from COVID-19 and significantly accelerate decarbonising our economy.

Government must:

- Establish a Systems Engineering Advisory Group for energy, to bring together the multi-disciplinary expertise required to meet the net-zero challenge
- Commit to and implement an agile Whole System approach to achieving net-zero
- Urgently review, with stakeholders, how the current legal and regulatory structure of the energy industry could be reformed to facilitate the net-zero transition for a range of scenarios
- Put in place arrangements to enable smaller stakeholders (supply chains, SMEs, innovation / start-ups etc.) to be actively involved in the sector

To find out more about FPSA, visit

theiet.org/fpsa



"We urgently need to see a Whole Systems approach using systems engineering principles if the green recovery and energy transition are to be realised. We ask Government to urgently consider this."

Craig Lucas,
Chair of the
IET Energy Policy Panel

Energy-efficient housing and deep retrofit

Through our Built Environment Panel, the IET has been exploring how the UK can significantly reduce domestic heating demand to meet the 2050 targets set out in the Climate Change Act.

In partnership with Nottingham Trent University, we have published a report on the challenge of 'deep retrofit', a whole-house approach that involves taking existing buildings to zero carbon status.

With housing now consuming around 30% of the UK's energy and producing 20% of greenhouse gas emissions, the report, titled *Scaling Up Retrofit 2050*, argues the case for a national deep retrofit programme. Initially focusing on social housing, it would cut carbon emissions and lower fuel bills. However, it will require close collaboration between Government, industry, housing providers and civil society to work.

To download your free copy of the report and find out more, visit

theiet.org/retrofit2050



IET The Institution of Engineering and Technology

NOTTINGHAM TRENT UNIVERSITY

Scaling up retrofit 2050

Why a nationwide programme to upgrade the existing housing stock is the only way for the UK to achieve its carbon saving goals.

theiet.org/built-environment
www.ntu.ac.uk

Join us, join in

As Europe's largest membership organisation for engineers and technicians, membership of the IET means a Professional Home for Life®. With us you'll find all the tools you need to develop, discover and succeed.

Put simply, the IET is where you belong.

Become a member today and have access to:

- Internationally recognised professional qualifications: **CEng, IEng, EngTech and ICTTech.**
- **Professional services** and support throughout your career.
- Over 100 **local communities** and **technical networks** worldwide.
- Over 1,700 **events** and **networking** opportunities per year.
- **Extensive library** containing digital and printed engineering and technology resources.
- Access to a range of unrivalled **knowledge services.**
- Online tools to **log your development** and **record your skills and achievements.**

Join the IET today
theiet.org/join

Email us at: join@theiet.org

Phone us on: +44 (0)1438 767648

or Text: 'IET Join' and your name to 07860 002793*

*free text line, no charges apply



== Keep up with industry developments

Explore the IET's resources and you'll find various ways to keep up with what's happening – both in energy and the wider engineering and technology industry.

Get involved in an IET community

Our communities bring industry and academia together, giving engineers around the world a platform to network, learn and collaborate. They are open to IET members and non-members, enabling engineers and technicians to network, share and develop knowledge online or face to face. We bring engineers together by region, technical interest or career stage, so you're sure to find one that suits you.

If you're passionate about shaping the future of engineering, then why not get involved? There are many opportunities available, from attending committee meetings to bringing new ideas to the table, through to the organising, running and promoting of events.

- Make new connections and expand your network
- Learn new skills that will count towards your CPD
- Contribute ideas for event topics
- Gain a competitive edge when applying for jobs
- Share your passion and inspire others

Visit our website and get involved!

theiet.org/communities

Energy networks

You can join any technical or geographical network which you feel is relevant to your career and interests.

- Future Energy
- IET Energy Sector
- Nuclear Engineering
- Power Electronics, Machines and Drives
- Satellite Systems and Applications

Events

IET events – whether in person or online – offer high quality technical speakers and concentrate on sharing knowledge and expertise to advance the engineering profession. They are an excellent opportunity to network and debate with professionals from your industry.

CPD hours are offered for all events and conference papers are automatically submitted for indexing on leading databases.

Renewable energy, transmission and distribution, high voltage, distributed generation and power system protection are just some of the topics regularly offered by our events and courses.



Save the date for CIRED

Europe's leading international conference and exhibition on power distribution as it visits Geneva on 21 -24 June 2021.

Find out more:

theiet.org/events

theiet.org/tv



≡ Achieve professional recognition

Becoming professionally registered proves to employers, customers and peers that you've met standards of knowledge, understanding and competence. You'll be recognised for your skills and achievements and will earn the right to use letters after your name.

We are licensed to award:

- Chartered Engineer (CEng)
- Chartered Manager (CMgr)
- Chartered IT Professional (CITP)
- Incorporated Engineer (IEng)
- Engineering Technician (EngTech)
- Electrician Technician (EngTech)
- Information & Communications Technology Technician (ICTech).

Find out more

theiet.org/profreg



Supporting the next generation

IET Futures Fund raises money to support the next generation of engineers to find solutions to the world's most pressing problems.

Our scholarships and bursaries enable engineering students and apprentices to realise their ambitions. We support young engineers, like Laura Fleming, who received an IET Engineering Horizons Bursary to help with her studies. Laura is an NIE Networks Overhead Lines apprentice.

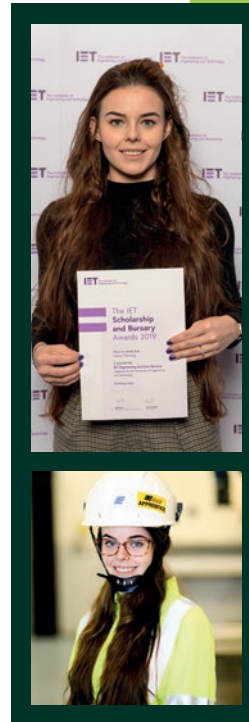
The world faces unprecedented challenges and engineers are needed to solve them. By supporting the IET Futures Fund, you can help inspire more students and apprentices.

Your support will be worth twice as much! To mark our 150th anniversary we have set aside £2m to match fund all new donations to our scholarships and bursaries and STEM education programmes, to help the next generation of engineers make their mark on the next 150 years.

Donate today or find out more at:

theiet.org/futuresfund
development@theiet.org
+44 (0) 1438 767253

For more information about our Scholarships and Bursaries, please visit theiet.org/scholarships



“

Through life experiences I realised I was more attracted to a more hands-on experience which would challenge me in my day-to-day working life. I decided an apprenticeship would be the way forward. In addition to my salary, the bursary helps alleviate any money stress, allowing me to concentrate on my work and training.

”

Laura Fleming
NIE Networks Apprentice

Build up your knowledge and skills

Get the training and information you need to succeed in your current role, and progress to new ones.

Digital Library

Access cutting-edge research from IET Books and Journals.

Advance and share your knowledge as a practitioner, researcher or student using the latest research from our trusted books and journals collection.

Find out more

ietdl.org

E-learning

Bring your skills up to date with courses from the IET Academy covering a broad range of technical and professional topics.

All courses are written by leading academics and industry organisations and are available as bite-size modules or full courses.

Find out more

theiet.org/academy

IET.tv

Watch engaging and inspiring content from leading academics and influencers.

IET.tv's video content is sourced globally, with over 9,000 videos of top quality multimedia.

Find out more

theiet.org/tv

Courses and training

Whether you want to hone your leadership skills, understand finances for clear decision-making or master project management – our professional skills training courses can help.

We have a range of courses that can be delivered in-company or through public courses, webinars and e-classes.

Find out more

theiet.org/pd-courses

Wiring Regulations

Ensure you're compliant with the latest *IET Wiring Regulations (BS 7671)*.

Order your copy of BS 7671:2018 and our practical guidance publications and find a wealth of resources to get you up to speed with the latest requirements. You can find training solutions, events, digital subscriptions and our free online *Wiring Matters* magazine direct from the experts at the IET.

Find out more

theiet.org/18th-resources-pr

Standards

Ensure you're following best practice by referring to our expert Standards publications.

Our range includes Guides and Codes of Practice that provide guidance on emerging and established technologies.

Find out more

theiet.org/standards

Continuing Professional Development

Investing time in your Continuing Professional Development (CPD) will help you gain the relevant competencies, the recognised knowledge, skills and attributes you need to deliver results throughout your career.

Keep a record of your CPD and plan future activities using the IET's simple online tool – Career Manager.

Find out more

theiet.org/cpd

≡ Inspec Analytics for energy

Understand your place in the energy research landscape and make strategic decisions about the direction of your projects with Inspec Analytics, a dynamic new tool based on the IET's renowned Inspec database.



Find out more

theiet.org/inspec

inspec-analytics.theiet.org

Support your R&D planning

- Monitor the research output of your organisation and see how this ranks globally.
- Compare your organisation with collaborators and competitors to set valuable benchmarks.
- Monitor global trends for hundreds of research topics to explore new fields and identify resources.
- Find collaboration opportunities with universities, government and health organisations to demonstrate impact.

For digital technologies researchers

- Stay-up-to date with the latest global trends in energy.
- Discover new topics related to your field and the resources you need to get up to speed.
- Identify the best journals to publish your research and conferences to present at.

Inspec covers a wide range of energy topics including environmental policy and legislation; energy conversion, utilisation and storage; and numerous energy resources and fuels including solar cells, waste resources, hydrogen fuel, fossil fuels, wind energy, tidal and flow energy, geothermal energy, nuclear energy and many more.

Stay up to date with the latest engineering news

E&T is the IET's award-winning monthly magazine and associated website for professional engineers. It covers all areas of engineering and technology, with analysis, news, innovation announcements and job advertisements.

It's available in print, online and via mobile devices. You can also keep up with the latest developments with our daily email newsletter, whitepapers and webinars.

To find out more visit

eandtmagazine.com

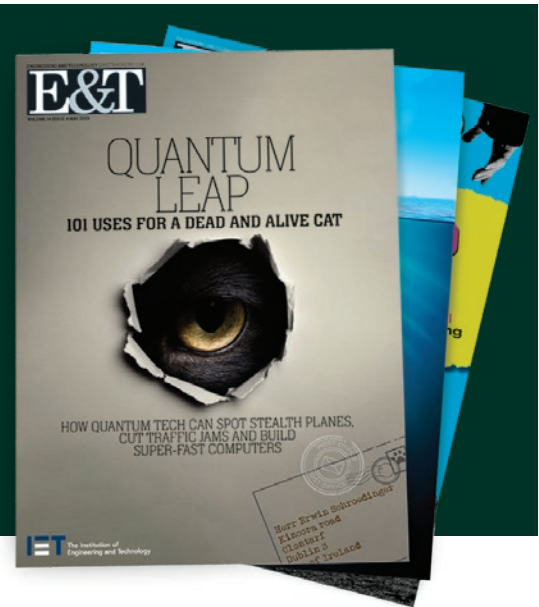
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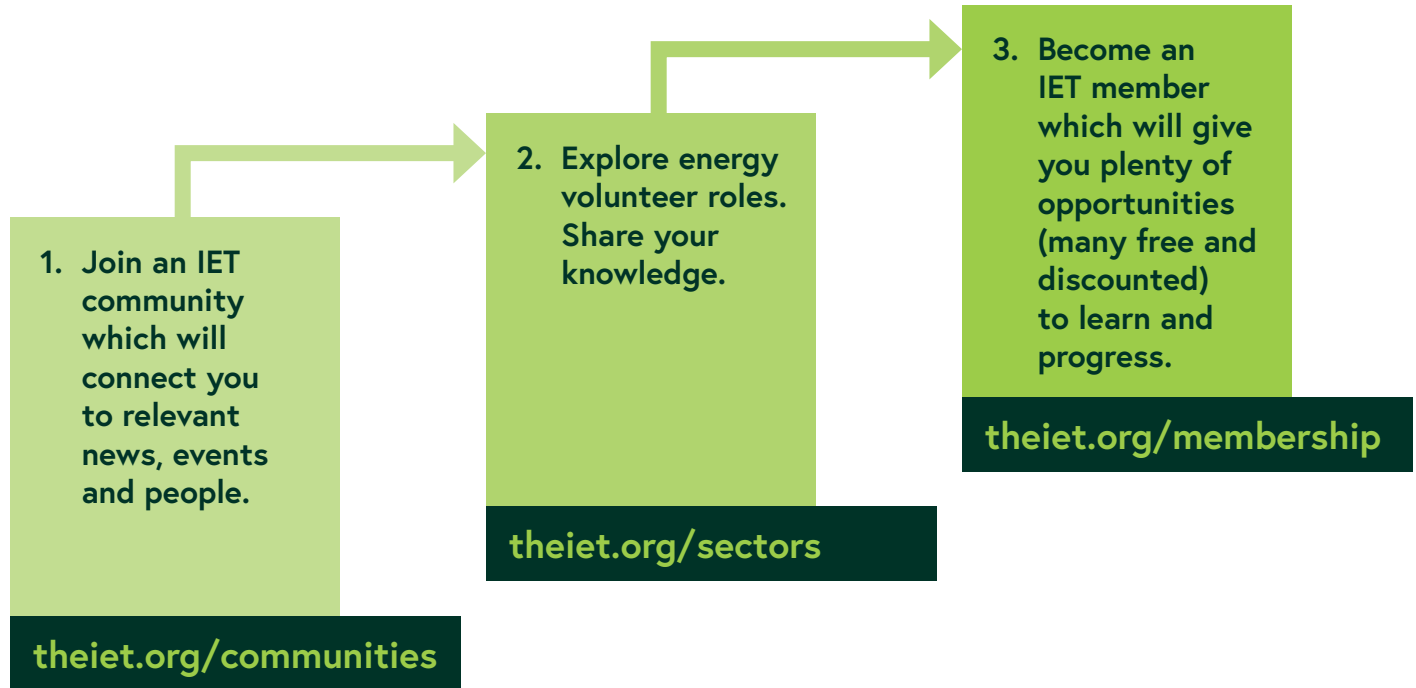
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≡ Three easy ways you can learn more and progress... today!



About the IET

As a professional engineering institution and a registered charity, we're working to engineer a better world, inspiring, informing and influencing the global engineering community and supporting technology innovation to meet the needs of society.

We have 167,000 engineer and technician members in over 150 countries, with headquarters in London and offices in Bangalore, Beijing, Hertfordshire, Hong Kong and New Jersey.

Reflecting the increasingly multidisciplinary nature of modern-day engineering, our work celebrates and supports engineering and innovation across key areas, from design and manufacturing, energy, healthcare, and digitalisation to transport and the built environment.

Passionate about the energy sector? We're here to help you take the next steps in your career.

Find out more
theiet.org



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The Institution of Engineering and Technology (IET) is working to engineer a better world. We inspire, inform and influence the global engineering community, supporting technology innovation to meet the needs of society. The Institution of Engineering and Technology is registered as a Charity in England and Wales (No. 211014) and Scotland (No. SC038698).

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