



EDITORIAL

Editorial: Advancing Energy Access, Innovation, and Sustainability

Saffa Riffat^{1*}, Armando Oliveira², Hasila Jarimi¹, Tajul Rosli Razak³, James Riffat⁴, Ziwei Chen¹

¹ Department of Architecture and Built Environment, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom

² Department of Mechanical Engineering, Faculty of Engineering of University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal

³ Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia

⁴ World Society of Sustainable Energy Technologies, Nottingham, United Kingdom

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ABSTRACT

Addressing global energy challenges, particularly energy poverty, climate change, and energy security, requires integrated approaches that combine technological innovation with policy, finance, and implementation strategies. Energy Catalyst (EC) continues to provide an international, multidisciplinary platform for high-quality research and applied solutions that advance sustainable and inclusive energy systems. This editorial outlines the journal's scope, editorial priorities, and continued commitment to supporting research that enables reliable, affordable, and sustainable energy access worldwide.

KEYWORDS Energy access, Renewable energy, Decentralised energy systems, Energy policy, Sustainable development, Energy poverty

1. Introduction

Global energy systems are undergoing rapid transformation in response to the dual challenges of climate change and persistent energy poverty. While significant progress has been made in expanding renewable energy capacity, access to reliable and affordable energy remains uneven, particularly in low-income and rural regions. Millions of people continue to lack access to electricity, and many more rely on inefficient and polluting energy sources for daily needs such as cooking and heating.

Addressing these challenges requires more than technological advancement alone. It demands integrated solutions that combine engineering innovation with effective policy frameworks, sustainable financing models, and context-sensitive implementation strategies. Energy systems are inherently interconnected with socio-economic development, environmental sustainability, and public health, necessitating interdisciplinary collaboration across sectors.

As Energy Catalyst enters its second volume, the journal reaffirms its role as a platform for research and practice that bridges the gap between innovation and real-world impact, with a particular emphasis on overcoming energy poverty and enabling inclusive energy transitions.

2. Scope and editorial focus

Energy Catalyst publishes original research articles, reviews, and applied studies that contribute to the development, deployment, and governance of sustainable energy systems. The journal maintains

* Corresponding author. Email address: saffa.riffat@nottingham.ac.uk (Saffa Riffat)



a broad and interdisciplinary scope, with a strong emphasis on solutions that are practical, scalable, and socially inclusive.

Key areas of focus include, but are not limited to:

- Sustainable and renewable energy technologies
- Decentralised and off-grid energy systems
- Energy systems infrastructure and development
- Clean cooking technologies and energy access solutions
- Hybrid and integrated energy systems
- Energy storage technologies and grid resilience
- Decarbonisation strategies and low-carbon transitions
- Energy access financing and innovative business models
- Energy policy, governance, and regulatory frameworks
- Climate resilience and energy security
- Community-scale and rural electrification systems
- Socio-economic impacts of energy access

The journal particularly encourages submissions that integrate technical innovation with policy relevance and demonstrate measurable impact in real-world contexts.

3. From research to implementation

A central objective of Energy Catalyst is to strengthen the connection between research, policy, and practice. While advances in renewable energy technologies and energy systems modelling are essential, their success ultimately depends on effective implementation in diverse and often resource-constrained environments.

Decentralised energy solutions, such as mini-grids and solar home systems, have emerged as critical pathways for expanding energy access in underserved regions. Similarly, innovations in clean cooking technologies and energy-efficient systems are improving health outcomes and reducing environmental impacts. However, challenges remain in scaling these solutions, particularly in relation to financing, regulatory barriers, and long-term system sustainability.

The journal values contributions that move beyond theoretical development to include field studies, pilot projects, performance evaluations, and case-based analyses. By promoting applied research and knowledge exchange, Energy Catalyst aims to support evidence-based decision-making and accelerate the adoption of sustainable energy solutions.

4. Editorial principles and global perspective

Energy Catalyst is committed to maintaining high standards of academic quality, transparency, and research integrity. All submissions undergo rigorous peer review appropriate to their disciplinary context. The journal emphasises clarity, methodological robustness, and the responsible communication of research findings.

Given the global nature of energy challenges, the journal adopts an inclusive and international perspective. Contributions from diverse geographic regions, particularly those addressing energy access in developing and emerging economies, are strongly encouraged. Research aligned with global development priorities, including the United Nations Sustainable Development Goals—especially SDG 7 (Affordable and Clean Energy)—is of particular relevance.

Collaboration across disciplines and sectors remains central to the journal's mission. By fostering dialogue among researchers, engineers, policymakers, industry stakeholders, and communities, Energy Catalyst supports the co-creation of solutions that are both innovative and implementable.

5. Looking ahead

As Energy Catalyst progresses through its second volume, the journal continues to prioritise research that addresses the most pressing energy challenges of our time. Future issues will further explore emerging areas such as digitalisation in energy systems, artificial intelligence applications, hybrid energy networks, and innovative financing mechanisms for energy access.

The transition toward sustainable and equitable energy systems is complex but achievable. Continued collaboration, innovation, and knowledge exchange will be essential in driving progress. The editorial team invites researchers and practitioners from around the world to contribute to Energy Catalyst and to engage with the journal as a platform for impactful, solution-oriented energy research.

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