

## **Oluleye, Oluwagbemisola (Gbemi) Oladeji**

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### **Education and key qualifications**

- 15/02/2016 PhD Chemical Engineering, *Integrating Waste Heat Recovery in Process Sites*, Department of Chemical Engineering and Analytical Science, University of Manchester, United Kingdom
- 2010 Master's Advanced Chemical Process Design (Distinction), Department of Chemical Engineering and Analytical Science, University of Manchester, United Kingdom
- 2007 B.Sc. Chemical Engineering (4.21/5.00 CGPA), Obafemi Awolowo University, Nigeria

### **Current position(s)**

- 2023 – Date Cleantech Lecturer, Grantham Institute for Climate Change and the Environment, Imperial College London, United Kingdom
- 2021 – Date Lecturer in Energy and Environmental Technology and Policy, Centre for Environmental Policy, Imperial College London, United Kingdom
- 2022 – 2023 Visiting Lecturer, Centre for Process Integration, University of Manchester, United Kingdom

### **Previous position(s)**

- 2019 - 2021 Imperial College Research Fellow, Centre for Environmental Policy, Imperial College London, United Kingdom *Competitive (<10% success) fellowships for researchers to establish an independent group.*
- 2016 - 2019 Research Associate, Department of Chemical Engineering, Imperial College London, United Kingdom

### **Five Selected Publications**

I have published 22 peer reviewed scientific papers in Journals. Among them, 17 are as first author. My publications have been cited 452 times (over 4,083 reads), and my current h-index is 11 (source: Google Scholar).

- **Oluleye, G.**, Bishay, D. and Kas, B. (2023) “Can a hierarchical ordering of alternative technological concepts for decarbonizing industrial energy systems minimize mitigation costs?,” *Frontiers in Sustainability*, 4. Available at: <https://doi.org/10.3389/frsus.2023.1057064>.
- Rai U., **Oluleye G.**, Hawkes A., 2022, An optimisation model to determine the capacity of a distributed energy resource to contract with a balancing services aggregator, *Applied Energy*, Vol:306, ISSN:0306-2619, Pages:1-22 <https://doi.org/10.1016/j.apenergy.2021.117984>
- **Oluleye G.**, Gandiglio M., Santarelli M., et al., 2021, Pathways to commercialisation of biogas fuelled solid oxide fuel cells in European wastewater treatment plants, *Applied Energy*, Vol:282, ISSN:0306-2619 <http://dx.doi.org/10.1016/j.apenergy.2020.116127>
- **Oluleye G.**, 2020, A novel optimisation framework to support increased uptake of low carbon industrial energy systems, *Chemical Engineering Transactions*, Vol:81, ISSN:1974-9791, Pages:1063-1068 <http://dx.doi.org/10.3303/CET2081178>
- **Oluleye, G.**, Allison, J., Kelly, N. and Hawkes, A. (2018). An Optimisation Study on Integrating and Incentivising Thermal Energy Storage (TES) in a Dwelling Energy System. *Energies*, 11(5), p.1095. <https://doi.org/10.3390/en11051095>

### **Selected Articles deposited in publicly available preprint servers**

- Syafina P., and **Oluleye G.**, A Comparative Assessment of Policy Induced Diffusion Pathways for Utility Scale Solar PV: Case Study of Indonesia, 2023, [<https://doi.org/10.21203/rs.3.rs-3461075/v1>] under review *Frontiers in Sustainable Energy Policy*
- McLaughlin S., **Oluleye G.**, Quantifying Green Hydrogen Cost Reduction from Policy-Induced Industrial Demand-pull, and Offshore Wind Integration, 2023, [<https://doi.org/10.21203/rs.3.rs-3469714/v1>] under review *Research Policy*
- Rtabi A., **Oluleye G.**, Benefits of an Optimal Policy-Induced Diffusion Pathway for Green Hydrogen Uptake in Refineries Globally, 2023, [<https://doi.org/10.21203/rs.3.rs-3469735/v1>] under review *International Journal of Hydrogen Energy*
- Ofori-Atta C., **Oluleye G.**, Optimisation-based Design of Market-based Policy Instruments for Accelerating the Uptake of CCUS for Global Refinery Decarbonisation, 2023, [<https://doi.org/10.21203/rs.3.rs-3469742/v1>] under review *Renewable and Sustainable Energy Reviews*

- Nilesh Patel D. N., Matalon P., **Oluleye G.**, et al. A Novel Temporal Mixed-Integer Market Penetration Model for Cost-effective Uptake of Electric Boilers in the UK Chemical Industry, 20 October 2023, [https://doi.org/10.21203/rs.3.rs-3461473/v1] under review Journal of Cleaner Production
- Savage T., Antonio del Rio Chanona, **Oluleye G.**, 2023, Robust Market Potential Assessment: Designing optimal policies for low-carbon technology adoption in an increasingly uncertain world, https://doi.org/10.48550/arXiv.2304.10203, under review Journal for Cleaner Production

#### Conference proceedings and Book Chapters

- **Oluleye G.**, Patel D., Matalon P., Rosa E. M., 2024, A Novel Optimisation Framework to Design Market-Based Policy Interventions for the Uptake of Alternative Fuels in the UK Chemical Industry, accepted for the 34th European Symposium on Computer Aided Process Engineering
- **Oluleye G.**, Hu F., Abu Ali H., Savage T., 2023 A Novel Stochastic Market Potential Optimisation Model for Clean Technology Uptake Modelling, 15th International Conference on Applied Energy.
- **Oluleye G.**, Morgan O., Elwy L., 2023 Assessing the UK's attempt to Establish a Zero-carbon Hydrogen Economy in the Industrial Sector, 15th International Conference on Applied Energy
- Teng Y., **Oluleye G.**, 2020, A Comparative Assessment of Policies to Support Heat Decarbonisation in an Industrial Site Utility System, 12th International Conference on Applied Energy
- Alwishah A., **Oluleye G.**, 2020, Top-level Analysis of New Business Models to Support the Decarbonisation of Industrial Clusters, International Conference of Technologies, and Business Models for Circular Economy
- **Oluleye G.**, 2020, Reducing Carbon Mitigation costs of Biogas Fuelled Solid Oxide Fuel Cells: An impact of new business models, 15th Conference on Sustainable Development of Energy Water and Environment Systems <http://hdl.handle.net/10044/1/85261>
- Oluleye, G. (2018) "Chapter 5: Process Integration Applied to Waste-To-Energy Production". Book Chapter.ID\_54083\_ in Waste-to-Energy (WtE) Nova Science Publishers

#### Research to Policy

My ability to translate my research to real-world policy making is evidenced by significant engagement in policymaking and recognized influence within governmental circles. In 2020, I served on BEIS' **strategic advisory board for the UK Industrial Decarbonisation Strategy**, and from 2021 to 2022 I collaborated with the House of Lords member to [publish](#) an essay on **Achieving net-zero: decarbonising industry**. I presented vital evidence in UK government departments and parliament sessions: Keynote Speaker for **Science Select Committee on Engineering Net Zero** in 2022, evidence on policies and business models for accelerated adoption of clean innovations for hard to abate sectors in 2021. I developed a system of systems method to support policy making in BEIS hydrogen economy team in collaboration with Energy Systems Catapult in 2022, and I have been invited to speak at BEIS on Impact of **heterogeneity on industrial decarbonisation policies**.

#### Research to Industry

My groundbreaking research, which consistently pushes the boundaries of current knowledge, has played a pivotal role in **guiding industries toward effective decarbonization strategies using cost effective innovative solutions**. From 2022 – 2023 I applied a unique optimisation model to inform the European Commission DG JRC on the key technological pathways to achieve emissions reduction and energy savings in the Iron and steel, Chemical and petrochemical, Non-ferrous metal, Non-metallic minerals, pulp and paper respectively at minimum investment cost, from 2020 – 2022 I supported Ecotricity by developing a [Carbon Footprint calculator](#), Analysed [Green Gas Potential](#) in the UK to support deployment, and integration of direct air capture, electrolyzers and evaluation of revenue certainty mechanisms for Skydiamond production. Between 2018 and 2020 I advised the Organisation for Economic Co-operation and Development on **Emerging Strategies for Decarbonising Energy Intensive Industries**, and supported BP in exploring the potential of **alternative ammonia production** and end use pathway, I also led the Energy Efficiency and CO<sub>2</sub> mitigation for Allied Industries; cement and iron and steel and mining for Carbon Dioxide Capture and Conversion (CO<sub>2</sub>CC) Program, run by [The Catalyst Group Resources](#).

#### Research to teaching

As a testament to the interdisciplinary nature of my research, my groundbreaking advancements and novel insights have significantly enriched **the curricula of five distinguished MSc programs**: Environmental Technology, Sustainable Energy Futures, Advanced Chemical Engineering, and Climate Change Management and Finance, and the upcoming MSc in Cleantech Innovation, set to launch in October 2024. I effectively translated my research into the development of two cutting-edge software applications, demonstrating the practical applications of my work. The first software for design and economic analysis of over 17 clean

technology options for buildings and industry has been used to support teaching and research at the University of Manchester for 10 years.

### Research-driven Standards

In recognition of my expertise in the field, I make substantial contributions to the establishment of industry standards for decarbonization and green bond development by holding key roles in prominent industry initiatives, including membership in the Clean Energy Ministerial Industrial Deep Decarbonization Initiative (IDDI) Joint Working Group (**invited**), the Assessing Low Carbon Transition (ACT) Technical Working Group (**invited**) and the Climate Bond Initiative Technical Working Group (**invited**), all focused on advancing decarbonization efforts within energy intensive industries.

### Research-driven Inclusivity

My research has reshaped diversity and inclusivity in energy research by emphasizing the crucial role of diversity in driving radical decarbonization. I provided direct evidence through impactful contributions, such as the ['Increasing Visibility of Underrepresented Groups in Energy Research'](#) IVUGER project and ['Serious Games for Serious Energy Solutions.'](#) Focused on studying diversity in collective decision making.

### Fellowships and Grants

- 2020 – 2021 BEIS Industrial Strategy Fellowship
- 2019 – 2021 Imperial College Research Fellowship
- Grants: **(1)** 2020, Decarbon8 Seed corn Fund (Role: Co-I) £20,000 **(2)** 2019 - 2020 Imperial College London Open SPF call for white papers (Role: Co-PI) £11,500 **(3)** 2019 – 2021 Imperial College Research Fellowship (Role: PI) £215,000, **(4)** 2018 – 2019 UKERC Whole Systems Networking Fund (Role: Co-PI) – part of this was used to provided seed funds to 3 projects £60,000 I have been awarded a prestigious fellowship, secured £378.5K of funding as PI and Co-PI, and delivered research consultancy worth £200K. Successfully delivered research projects as researcher (*Total: £ 12,898,879*)

### Prizes and awards

- 2023 Pay Review Award to recognise exceptional individual and team achievement.
- 2015 Manchester Doctoral College Best Contribution to Society Award
- 2010 Best graduating student M.Sc. Process Integration, The University of Manchester

### Selected Talks

- 2023 (1) Future of Finance Roundtable “*Can the carbon credit markets institutionalise and tokenise at the same time?*” (2) International conference on Applied Energy “*A Novel Stochastic Market Potential Optimisation Model for Clean Technology Uptake Modelling*” “*Assessing the UK’s attempt to Establish a Zero-carbon Hydrogen Economy in the Industrial Sector*”
- 2022 – 2023 Energy Futures Lab Lunchtime Seminar – “*A novel market potential assessment for adoption of industrial decarbonisation concepts*” “*Developing contracts-for-difference for accelerating the production of sustainable aviation fuels in the UK*” “*A techno-economic assessment of the viability of utilising electrolytic hydrogen production waste heat for district heating in the UK*” “*Exploitation of UK Industrial Demand to Reduce the Cost of Green Hydrogen Produced via Offshore Wind*”
- 2021 Transition to net zero seminar. “*A mountain to climb? Industrial process heat decarbonisation*”
- 2020 keynote speaker at the Achieving Net Zero: Decarbonising Industry roundtable by the All-Party Parliamentary Climate Change Group (APPCCG)
- 2020 International conference on Sustainable Development of Energy, Water and Environment Systems. “*reducing mitigation costs of switching to biogas fuelled solid oxide fuel cells: An impact of new business models*”

### Journal Editorial and Reviewer

- Editorial Board Member, Environmental Research Communications Journal IOP Science
- Invited Guest Editor of Special Issue ‘Novel Technologies for Utilising and Upgrading Waste Heat’ – systems, policies, and business model to increase uptake.
- Reviewer for Applied Energy, Energy, Energies,

### Elected Memberships

(1) Clean Growth Leadership Network Youth Advisory Council (2021–2023), (2) Member Decarbonisation Leaders Network, (3) Academic member The Sargent Centre for Process Systems Engineering, (4) BEIS Strategic Advisory board for the Industrial Decarbonisation Strategy (2020–2021), (5) Scientific Advisory Board for International Conference on Sustainable Development of Energy, Water and Environment systems, (3) Trustee [Opportunity Green](#)

### Nominator Panels

(1) Assessor for clean growth innovations submitted by entrepreneurs to the Clean Growth Fund, a UK-based, BEIS-backed investment fund established to support early-stage companies that have the potential to unlock significant GHG emissions savings, (2) Earth shot prize nominator. (3) Assessor for British Council GREAT scholarships, and (4) President's award Research panel, Imperial College London

### Teaching and Research supervision

I have a PG Cert in University Learning and Teaching and a Fellow of the Higher Education Academy, and an extensive record of guiding and nurturing interdisciplinary researchers. **I have overseen an exceptional number of MSc projects due to my compelling research and its tangible impact.**

**2019 – date** Convenor for (1) Energy Economics and Policy Module, MSc Sustainable Energy Futures, (2) Energy Policy Option, MSc in Environmental Technology, (3) Advanced Process Design, MSc Advanced Chemical Engineering, (4) Climate Change Mitigation, MSc in Climate Change Management and Finance

**2019 – date** Co-supervisor for 3 PhDs and Main supervisor for 2 PhD, Lead Supervisor for 44 MSc research projects: 6 students from MSc Chemical Engineering, 9 from MSc Sustainable Energy Futures and 29 students from the MSc Environmental Technology, Imperial College London

**2021 – 2023** PhD Viva Examination: 2021 Dr Maja Helena Persson A Techno-Economic Analysis for Local Hydrogen Production for Energy Storage and Services, 2023 Dr Paloma Ortega Arriaga, Assessing the economic and environmental sustainability of solar off-grid systems for electricity access in rural India and Kenya

### Leadership and Public Outreach

- 2020 – 2023 Research Theme Champion for Policy and Innovation Energy Futures Lab
- 2019 – 2020 Academic Champion for Industrial Decarbonisation, Energy Futures Lab, and the Grantham Institute – Climate Change and the Environment collaboration
- 2019 – date Member College Athena SWAN Self-Assessment Team, and Task and Finish Group on Non-gendered References, Imperial College London
- Public Outreach: 2021 Invited speaker to a roundtable on Making stuff greener A Day in the life of a green manufacturing engineer at The Great Exhibition Road Festival, 2021 Engagement with Institute of Physics via Looking Glass Podcast on decarbonisation of cleantech manufacturing from a global perspective, 2019 – date Mentor for high school students (girls) with 'I CAN BE

### Research Collaborations

- 2019 – 2022 International Gas Union, Oxford Institute of Energy Studies, RBAC USA, and University of Texas Austin on a global database for renewable gases to support the energy transition. Report available <https://www.igu.org/resources/global-renewable-low-carbon-gas-report/>, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/10/A-mountain-to-climb-Tracking-progress-in-scaling-up-renewable-gas-production-in-Europe-NG-153.pdf>
- 2018 – 2020 Navigant Consulting on business models to support clean tech adoption, BEIS (Industrial Energy Team) on policy heterogeneity analysis to support clean tech adoption, CONVION for market potential analysis of Solid Oxide Fuel Cells.