Abstract:
Natural gas is at a crossroads. On one hand, the significant potential of unconventional gas reserves offers economic and energy security benefits, whilst on the other the imperative to mitigate climate change challenges a significant role for any unabated fossil fuels in the medium term. The Sustainable Gas Institute (SGI) was founded in 2014 to build a vision for the role of gas in sustainable energy systems, driven by innovation in science and engineering and a unique global research partnership to assess and bring forward the technologies that could underpin this role.

This talk presents the key technology challenges that natural gas faces; energy efficiency in upstream and LNG operations, the need for innovations across the gas value chain, and the technical possibilities for carbon capture, storage and use. These thematic deep-dives into technical needs then build up into a whole-systems perspective of gas exploration, production, transport and utilization, set within a framework of competing energy vectors and the entangled needs of energy affordability, security and the environment. Finally, the SGI’s role in building a global industry-academia partnership tackling these research challenges is set out, highlighting opportunities for collaboration and engagement.

Biography:
Dr. Adam D. Hawkes is Senior Lecturer in Energy Systems, Programme Lead in energy modelling at the Grantham Institute and Deputy Director of the Sustainable Gas Institute at Imperial College London. A Chartered Engineer, Dr Hawkes has over 15 years experience of technical leadership and project management in the field of energy technology assessment and systems modelling. Adam is author of over 75 scientific outputs, specialising in analyses at the interface of technology, infrastructure, economics and the environment. His team creates and applies a broad range of quantitative approaches to consider key emerging challenges in energy systems such as gas futures, heat decarbonisation, mass-market integration of renewables, the role of carbon capture in future energy systems, technology R&D prioritisation, and assessing the balance of global effort in global climate change mitigation approaches. Adam frequently provides strategic and analytical services to international governments, industry, NGO and other energy system stakeholders on topics ranging from technology appraisal through to policy impact assessment.