



# Lichfield Science & Engineering Society



CHAIRMAN

Dr. David Dimeloe

PATRON

Professor Elizabeth Barnes CBE  
HM Lord Lieutenant of Staffordshire

PRESIDENT

Professor Janet M Lord CBE FMedSci

## **OFF-ROAD TO NET-ZERO: POWERTRAIN TECHNOLOGY FOR MOBILE MACHINERY**

**Mark J Richards B.Eng, MIMechE  
Tom Beamish C.Eng, MIMechE  
JCB Ltd.**

**8:00 pm on Tuesday 9<sup>th</sup> June 2026  
In the Studio Theatre of the Lichfield Garrick**

JCB's Off-Highway "Road to Zero" strategy sets out a pragmatic, technology-neutral pathway to achieving net-zero emissions across the non-road mobile machinery sector.

The lecture will outline progress driven by customer demand, ensuring products retain core attributes of performance, reliability, and usability while delivering measurable improvements in efficiency and emissions. A key priority is continued diesel engine optimization, including compatibility with net-zero fuels such as hydrotreated vegetable oil and other bio-derived alternatives to allow immediate carbon reductions using existing machines and infrastructure. In parallel, JCB has advanced battery-electric solutions for indoor and emissions-restricted environments. Hydrogen combustion is a central pillar of the strategy and JCB's hydrogen engines are well suited to high-power, high-utilisation duties.

Tom Beamish graduated from the University of Bath in 2014 with a Masters degree in Mechanical Engineering, before joining JCB as a Graduate Engineer. He later joined the JCB Research team, working on innovative new machine concepts and processes and in 2018 became Executive Support to JCB's Chairman Lord Bamford. Since 2020 Tom has worked to develop and support JCB's Net Zero Strategy initiative, providing key research and analysis into future fuel technologies.

Mark J Richards graduated from the Coventry University in 2015 with a Bachelors degree in Aerospace Engineering. At JCB following several work placements across the business, covering machine quality, system development and application engineering, Mark joined the Power Systems engine design team supporting advancements in Stage V diesel technology and being part of the 2019 JCB World's Fastest Tractor team. In 2020 Mark began a second stint of executive support to Lord Bamford providing technical analysis of Hydrogen Propulsion in Europe and worldwide.

For further information, please see our website at [www.LSES.org.uk](http://www.LSES.org.uk)  
Students and Members Free.

Visitors £8.00. Tickets are not issued in advance, please pay at the door. (Cash only please.)  
Members must sign in. Those signing in before 7:50 pm will have precedence over all visitors.

This lecture is expected to finish by 9.30 pm.