



CASE STUDY: **PIONEERING R&D WITHIN THE SUBSEA OIL AND GAS INDUSTRY**

FMC Technologies

New technology is currently being developed at Glasgow Caledonian University as part of a multi-million pound international collaboration to enable safer and more efficient oil recovery from deeper water and harsher environments than ever before.

Limitations in current technologies often mean that conventional oil recovery processes leave around two-thirds of the oil in the reservoir, yet recent developments, including increased oil recovery (IOR) systems, could make the safe extraction of this additional oil both economically and technically feasible.

With opportunities such as this in mind, global oil and gas solutions provider FMC Technologies is working with the university to deliver a pioneering five-year research and development collaboration within the subsea oil and gas industry.

FMC Technologies is a leading global provider of technology solutions for the energy industry with approximately 11,500 employees and production facilities in 16 countries.

FMC Technologies is working with the University to deliver a pioneering five-year research and development collaboration within the subsea oil and gas industry.

FMC Technologies designs, manufactures and services technologically sophisticated systems and products such as subsea production and processing systems, surface wellhead systems, high pressure fluid control equipment, measurement solutions, and marine loading systems for the oil and gas industry.

The collaboration combines expertise in electronics, optoelectronics, electrical power and instrumentation at GCU with that of subsea engineering and optoelectronics within FMC to deliver a portfolio of research and development projects to identify new opportunities for safe and efficient oil recovery and to enhance reliability and integrity in the monitoring of subsea installations.

It will also produce innovative new products and technologies for subsea hydrocarbon production applications. All aspects of the production process will be covered, including subsea equipment monitoring and oil recovery technologies and will identify and develop new technologies to be installed in new and existing equipment across the globe. The venture will also involve staff exchange, student placements and research studentships.

FMC Technologies

Professor Brian Stewart, School of Engineering and Computing
Glasgow Caledonian University, Cowcaddens Road, Glasgow G4 0BA
T: 0141 331 8604 E: b.stewart@gcu.ac.uk

Further information:
www.gcu.ac.uk/sec

APPLIED KNOWLEDGE EXCHANGE

CASE STUDY: PIONEERING R&D WITHIN THE SUBSEA OIL AND GAS INDUSTRY



To support its drive to innovate in this field, FMC Technologies has established a dedicated optoelectronics research and development group, based in Glasgow, to focus on developing a wide range of integrated sensing solutions, and the partnership with GCU will include a strategic research collaboration focused on future subsea optoelectronic systems.

As part of their collaboration, GCU and FMC have had two Knowledge Transfer Projects (KTPs) approved. The projects will involve KTP associates working on the development of electronics and sensors, as well as software, to develop new intelligent sensors for the oil and gas industry. The second KTP will involve benchmarking chemical constituents for on-line subsea monitoring of oil related chemicals.

Professor Brian Stewart, who is an expert in using technology to enhance asset knowledge and communication, is leading the technical team at GCU. He said: "A greater knowledge of the 'state of health' of key equipment on the seabed will not only save oil and gas companies significant costs, it will improve safety, and will enable extraction from deeper water and harsher environments than ever before.

"One of the emerging technological innovations is therefore the development of intelligent optoelectronic sensors to provide more detailed and accurate technical information on the state of the equipment used to pipe oil from the subsea reserves to land delivery points which may be hundreds of miles away. This will help achieve total asset awareness and maximise performance by allowing the asset to operate at optimal efficiency, cost and safety with minimal environmental impact."

Dermot Rogers, Product Engineering Manager at FMC Technologies with responsibilities for Optoelectronics, said: "In addition to the complementary expertise and specialist facilities offered by the University, their flexible and positive approach to working with industry was exactly what we wanted in an academic partner. It's an exciting move for us, and one which we hope will have global benefits. The opportunities for significant and groundbreaking work are tremendous."

"This collaboration builds on Scotland's tradition of great scientific ingenuity. FMC considered a range of options when choosing an academic partner and I am pleased that GCU was able to secure this innovative work that may help our oil and gas industries continue to thrive."

Welcoming the collaboration, Energy Minister Jim Mather added: "This collaboration builds on Scotland's tradition of great scientific ingenuity. FMC considered a range of options when choosing an academic partner and I am pleased that GCU was able to secure this innovative work that may help our oil and gas industries continue to thrive."