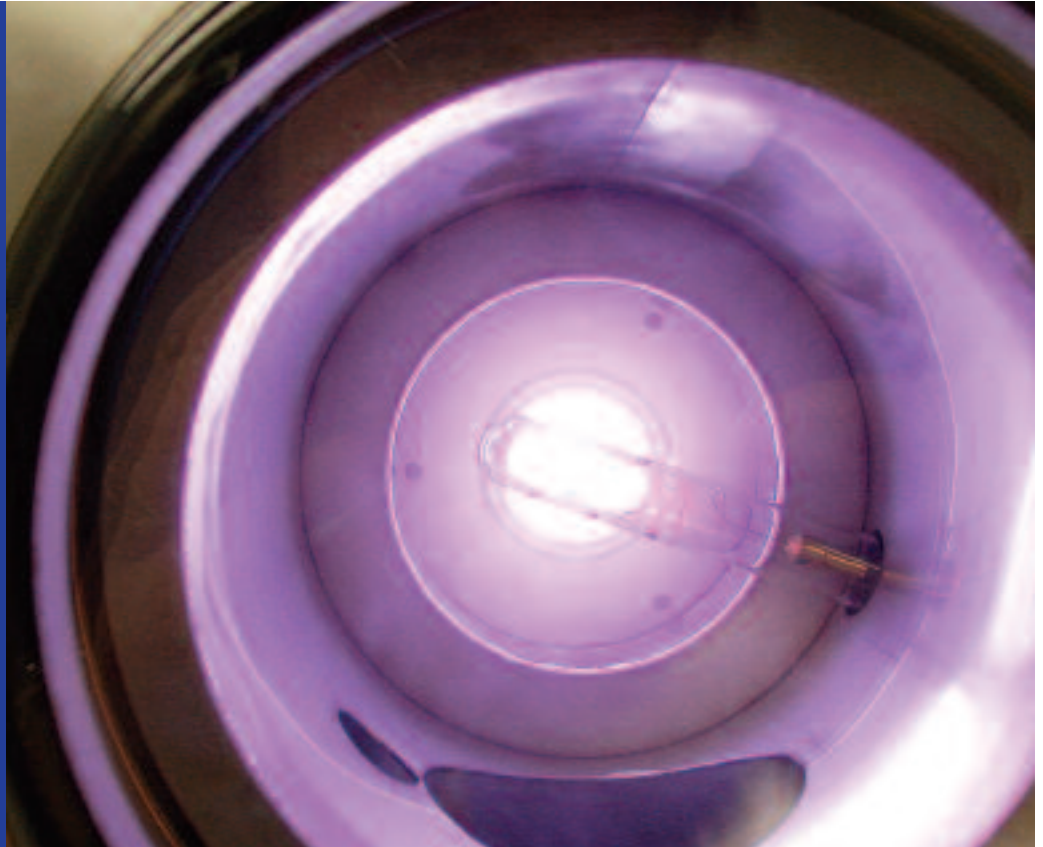


Interior Surface Coating



ITI Energy is investing up to £3 million to develop a new interior surface coating technology that will, for the first time, allow an ultra-smooth, hard, diamond-like carbon film to be applied to the internal surfaces of a range of components used in many industries, including oil & gas.



Technology Development

Although high performance coatings are already used widely on exterior surfaces, none have proved adaptable to give a low-cost means of protecting interior surfaces. The technology being developed promises to address this issue and has the potential to at least double the existing in-service life expectancy of high-wear critical components and provide a significant improvement in fluid and gas flows by delivering a step change in erosion and corrosion resistance.

Sub-One has established a new European operations base in Scotland to work with ITI Energy to further develop the technology and to commercialise it in Europe, the Middle East and Africa.

ITI Energy estimates the market potential for applications in the oil & gas industry alone to be several hundred million pounds per annum. Until now the operators of most high-wear critical components, such as pumps, valves, and specialist down-hole equipment, have had to accept that conventional coating technologies only give partial protection against erosion and corrosion. These effects, in combination with loss of line pressure resulting from the high friction levels, have a negative impact on operational performance. A new interior coating technology, with significantly enhanced corrosion and erosion resistance, combined with improved flow dynamics, has the potential to create substantial value through the reduction of costs related to the replacement of failed and worn parts.

continued...

Key Features & Benefits

- A significant technological breakthrough – putting a pure, ultra-smooth, ultra-hard, corrosion stopping surface on the interiors of everything from precision components to industrial piping
- ‘Hollow Cathode Plasma Ion Immersion Processing’ (HCPIIP) a practical vacuum deposition technology for the deposition of Diamond-like-Carbon (DLC) and other coatings on the interior surfaces of metallic components
- Thick (>40 micron for DLC) highly adherent coatings, with potential for ‘tuned’ surface properties.
- Suitable for a wide range of metallic parts
 - Low temperature (<300°C)
 - High wear resistance
- Fast, cost effective, robust, high turnaround production
 - High corrosion resistance
 - Low coefficient of friction
- Complete coverage of interior surfaces, coats threads and details

Participation Opportunities

There are a number of opportunities for Scottish based companies to become involved in specific aspects of the research programme and subsequent commercialisation stages.

Commercial R&D partners

- Application development partners to develop the application of the coating technology to new fields and to define their scope and opportunity through performance testing, qualification and scale up (oil/gas, chemical, food, brewing/distilling, semiconductor, aeronautical, nuclear, defence and energy industries).

Licensees

- For coating companies who are interested in taking a license (on regional operating basis), early entry participants who have or can find suitable customers

Supply Chain

- Suppliers of pipe, tubulars, couplers, valves, pumps etc as used, for example, in the oil/gas, chemical, food, brewing/distilling, semiconductor and energy industries.

End Users

- The technology has the potential to benefit both businesses across the oil and gas industry (particularly those involved with ‘down hole’, pipeline and component aspects), and those active in other industry sectors including chemical processes, food, brewing/distilling, semiconductors, pharmaceuticals and polymer coating.

Collaboration

The primary research partners are Scottish-based Sub-One Europe Ltd, California-based Sub-One Technology Inc, Chevron Technology Ventures LLC and the University of Paisley.

www.sub-one.com

www.technologyventures.chevron.com

www.paisley.ac.uk

Contact us

To find out more about potential research and commercialisation opportunities related to this project, contact: Dr Alf Smith, Project Manager at alf.smith@itienergy.com. To find out about becoming a member of ITI Energy and the range of membership benefits please visit www.itienergy.com/joinhere