

Oil prices are down from over \$100 barrel to below \$50 but despite the short term gloom, oil and gas remains one of the world's largest enterprises worth up to \$3 trillion each year. Whilst the industry has a track record of incredible innovation - perhaps most notably the development of the North Sea Continental Shelf in the 1970s - it is by nature, very conservative and prefers to stick with tried and tested products and processes where possible. In practice, this means the extensive use of steel for pipes, rigs and subsea structures but changes are afoot.

Some of the largest reserves discovered in the past decade are in deep water in the Gulf of Mexico and off West Africa and Australia. In some cases, this is 30 times deeper than the North Sea and this means existing technologies are unsuitable which means there is an opportunity for new and innovative products. The challenges in ultra-deep water relate to the weight, pressure and corrosion; at 3000 metres, a riser could weigh up to 1000 tonnes which requires large (and very expensive) rigs and ships to support this weight.

Composites have the advantage of low weight (eliminating the need for large and expensive buoyancy tanks), cheap to install (they can be supplied in continuous lengths of up to 3km and can be unwound like a hose-pipe), highly corrosion resistant and well suited to the increasing operating pressures which can reach 20,000 psi.

In the last few days, one of the world's largest oil and gas companies, National Oilwell Varco, has acquired Pipex in Plymouth and is another example of the opportunities for companies willing to engage with this sector. Whilst the North Sea faces significant problems it is worth remembering that Aberdeen has, by some estimates 25% of the world's expertise in sub-sea oil and gas technologies and the UK as a whole is perhaps the world leader.

The NCC recently commissioned a flexible oil and gas pipe test rig funded by Shell. This can test to a new standard being developed by DNV-GL which could result in a massive increase of the use of composites in this sector. Safety and reliability are a given in this industry and the NCC is seeking to work with suppliers to develop and prove composites can meet the needs of this sector.

**Website:** [www.nccuk.com](http://www.nccuk.com)