**Elasticomeric Solutions for Marine Moorings and Risers: D. G. Aubrey, CEO, EOM Offshore LLC**

For shallow water/near-surface marine risers and moorings, dynamic forces create significant loads on their components, shortening lifespan and complicating mooring geometries. Examples abound in offshore wind, wave and tidal energy, fisheries and aquaculture applications, oceanography, small boat harbors, etc. Other requirements sometimes include power and data communications from the surface asset to/from a near-bottom distribution network. Complex and energetic waves and currents mandate compliance be built into moorings and risers. In most instances, geometric compliance is used, thereby increasing the watch circle and area for the installation, complicating service and support operations. Elasticomeric solutions have been implemented for a decade or more, providing compliance, power generation, and data transfer within a rugged mooring element built to withstand tens of millions of cycles of stretch. These elasticomeric solutions have been applied to oceanographic moorings, environmental observation systems, boat moorings, aquaculture/fisheries, offshore energy, and other marine applications.

**Flow Induced Vibration - Flexinsert & MAPS Integrity Management: Jess Zlokich, Baker Hughes, a GE Company**

Due to the large amount of gas reserves in the Asia Pacific region, there is increased requirements for large diameter gas export risers. The high velocity dry gas flowing through these risers creates the risk of flow induced vibration, in which vortices are formed in the carcass profile resulting in vibration in the riser. Although this vibration does not affect the integrity of the flexible pipe, it can cause failure of the rigid topside and subsea structures. BHGE have developed a solution with a T-shaped spiral insert into the carcass layer called “Flexinsert”. As this is a standalone layer the rest of the pipe remains the same ensuring the overall pipe integrity. BHGE have also developed a “MAPS Integrity Management” which detects wire breaks in the tensile and pressure armour layers of the flexible pipe. The equipment, installed on the outer sheath, is portable, rapid ensuring the overall pipe integrity. BHGE have also developed a solution with a T-shaped spiral insert into the carcass layer called “Flexinsert”. As this is a standalone layer the rest of the pipe remains the same ensuring the overall pipe integrity. BHGE have also developed a “MAPS Integrity Management” which detects wire breaks in the tensile and pressure armour layers of the flexible pipe. The equipment, installed on the outer sheath, is portable, rapid and non-destructive and does not compromise riser integrity.