GO WITH THE FLOW

WILLIS EXPERTISE IN RENEWABLES

The Willis Renewable Energy Team - a division of the Global Markets International Utility Practice Group - has been involved with the range of Renewables from the pioneering days, with a particular focus on marine energy.

This means that our experience is both broad and deep: we are established and trusted advisors, providers of technical expertise, and place great emphasis on efficient claims management.

Our long involvement in the sector has led to close ties with specialist markets. This means that we can tailor client - or project - specific risk transfer solutions for any project, from plan to installation and throughout the operating life. Innovation is as much a part of your world as it is of ours.

CONTACTS

Michael Buckle
Executive Director
Global Markets International
Tel: +44 (0)20 3124 6531
Email: bucklem@willis.com

William Peilow
Renewable Energy Broker
Global Markets International
Tel: +44 (0)20 3124 6414
Email: peilowwr@willis.com

Willis Limited

The Willis Building
51 Lime Street
London , EC3M 7DQ
United Kingdom
Tel: +44 (0)20 3124 6000
Fax: +44 (0)20 3124 8223

www.willis.com

GENERATING INSURANCE SOLUTIONS... NATURALLY

WAVE AND TIDAL POWER

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SNAPSHOT: SURF'S UP!

The solution of our future energy needs will rest substantially on economically viable and environmentally acceptable resources: Renewables.

Hydro - in the form of dams and turbines - is an established fact. Dams, however, carry substantial environmental cost. Marine energy takes similar principles and pushes them to their limits - but is all but environmentally invisible.

Water is 800 times denser than air: whilst Wind energy plays an increasing role in the generation of energy, the exponentially improved rewards of capturing, converting and delivering the power of the oceans as electricity are plain.

> "WATER IS 800 TIMES DENSER THAN AIR... THE CHALLENGE IS TO EFFICIENTLY CHANNEL THE VAST ENERGETIC POTENTIAL OF THE NATURAL MOTION OF THE SEAS AND TIDES"

THE CHALLENGE

The challenge is to efficiently channel the vast energetic potential of the natural motion of the seas and tides - Wave or Tidal. Many obstacles lie ahead in the development of this new, Renewable Energy Industry.

Vigorous innovation has produced a diversity of methods for harvesting the movement of the waves. Unlike Wind, there is no consensus as to which will find favour - we are still working with prototypes. However, the many lessons taken from the development of wind, especially offshore, will doubtless steepen the Wave, Tidal and Tidal Stream technology development curve.

Tides are predictable. The advent of underwater turbines that draw energy from the ebb and flow of vast volumes of water with minimal environmental impact may well be the way forward. The tides may well be predictable - but the technological means to convert their energy into a flow of equally reliable and inexpensive electricity will be difficult.

Such emergent technologies must be robust and reliable, survivable, maintainable, operable and cost-effective. Key to this final requirement are the economies of scale and the amortising of the substantial R & D costs. Innovation introduces other challenges - the 'greentape' of certification, for example. Groundbreaking enterprise carries risks: some readily identifiable - others, as yet, unknown.

WILLIS IDENTIFIES KEY RISKS

The range of devices deployed in this exciting sector carry their own risks, principally:

- **Technology:** Survivability in the Seas, Long Term Reliability, Turbine Failure, Technical Defects, Delay in Start Up

- **Transmission and Distribution:** Subsea Cable Losses, Single Point Failure, Export Cable Dangers, Grid Connection

- **Liability:** Professional Indemnity, Employers' Liability, Workmen's Compensation

- **Other Key Risks:**
  - Construction
  - Supply Chain
  - Site Acquisition
  - Title and Access
  - Renewable Energy Certificates

> "GROUND-BREAKING ENTERPRISE CARRIES RISKS: SOME READILY IDENTIFIABLE- OTHERS, AS YET, UNKNOWN"