Call for Proposals - Preview

Technologies for Ultra Deepwater

(Output from Theme Day, Amsterdam, NL)

Background to the Theme

A central part of ITF's work is to take views from a number of industry sources, such as end users, service providers, and suppliers, to identify key technology challenges that would bring about a substantial increase in production, improve recovery rates or extend the life of a facility.

ITF uses a thematic approach working in collaborative participation with its members and industry to identify common areas of interest and technology needs. This Call for Proposals has resulted from the output of an ITF Theme Day held in Amsterdam, NL on 23rd April 2008. This intensive facilitated workshop brought together ITF members, supply change providers, operators, service companies, small and medium-sized enterprises, and research and academia players to discuss the challenges now facing the industry as it moves into deeper water and the technology developments that are required to look beyond 1500m.

This Call aims to stimulate proposals from global development expertise to meet operator needs which can be deployed throughout the world. ITF and its members will assess, and our members will fund those proposals of highest interest. The ITF process seeks to bridge the gap between the large global players of our industry and the development community with the ultimate aim of deploying new technology solutions.

Key drivers for 2008, identified by ITF members, are the desire to produce fields in a more cost effective and efficient manner. The focus of all ITF themes is to bring forward technologies, with clear benefits to sponsors, which require assistance in **research, development, and/or field trial.**

It is not the aim of ITF, or its members, to prescribe specific technology solutions but to stimulate innovative proposals that fit with identified needs. The descriptions for each topic have therefore highlighted top level information in order to allow for innovation and flexibility in interpreting the most appropriate technical solutions.

A Collaborative Approach to Investment in Technology

ITF has an impressive track record in delivering finance to help develop new initiatives for oil and gas technologies from early stage joint industry projects (JIPs) through to field trials and commercialisation. Since 1999 ITF has raised over **£32 million** in direct JIP support, with projects linked to an estimated **£20 million** of equity investment, and over **£20 million** in trials funding.

ITF accesses funds from the 20 major oil and gas operating and service companies that are ITF members. Proposals submitted under this call will be reviewed for financial sponsorship by **all ITF members**. This is an excellent opportunity to gain a wide audience in seeking support for your technology.

ITF has contractual arrangements on confidentiality with ALL its members (operators and service companies) and ITF will enter into a parallel agreement with all developers submitting proposal applications. Proposals will be submitted to our members only for the purpose for which they are provided, i.e. assessment for funding support and implementation.

(Note: our members are listed on our website – (www.oil-itf.com)

An Open Invitation for All Technology Developers and Suppliers

Over the last few years the offshore oil and gas industry has moved into deeper water and developments are currently taking place in depths of 500-1500m. As existing reserves continue to dwindle global exploration and developments need technologies to look beyond 1500m, 'Ultra-Deepwater'. In exploiting deep water discoveries at extreme subsea depths the industry is seeking to produce fields in a more cost effective and efficient manner.

This is your opportunity to help solve the technical challenges which face the industry and thus directly help improve these issues.

This is an open invitation for all organisations seeking sponsorship for **innovative technologies** to submit proposals for **research, development, and/or field trial** of technology in the following areas:

- Ultra deepwater Installation and Mooring Techniques
- Subsea Power
- Control and Monitoring
- Risers and Tubulars (inc. New Materials)
- Ultra Deepwater Intervention
- Subsea Processing for UDW

A list of specific technology challenges that are of interest to ITF members may be found later in this document.

ITF Member companies have assets and operations throughout the world. We are therefore inviting proposals for technologies that may be applicable in any geographical area.

Those interested in submitting a proposal should respond registering their interest as early as possible by sending an e-mail to Ryan McPherson, r.mcpherson@oil-itf.com

Qualifying Technologies

To qualify for this call, your technology must:

- Be applicable to issues identified
- Fulfil at least one of the items within this invitation
- Be novel or innovative
- Demonstrate a clear business case for support
- Have a clear and demonstrable path to commercialisation and implementation

Qualifying Organisations

Proposals are invited from any organisation including SME, academia, research institute, large organisation, consortium, or alliance. Proposals may be submitted by a national or

international organisation, and equal opportunities will be extended to all proposers. Please bear in mind however that should your proposal be taken forward, you will be required to partake in meetings and make presentations to interested parties in the United Kingdom in the English language (teleconference and video conference are acceptable).

Process and Schedule

The Proposal Application Form is available for downloading on our website at www.oil-itf.com. Using the Guidance Notes (also to be found on our website), please complete the form and return it electronically in **MS Word** format (**NOT PDF**) to Ryan McPherson at r.mcpherson@oil-itf.com **NO LATER THAN 21st JULY 2008.**

In addition, we request that you complete a two slide PowerPoint presentation as detailed in the Guidance Notes, which backs up your proposal submission in a concise form.

NB. Please read the Guidance Notes carefully before completing the Proposal Application Form as failure to provide the necessary information in relation to your technology may result in premature disappointment. Proposals received after the deadline may not be processed. Therefore please ensure your submission reaches ITF before the specified deadline.

About the Industry Technology Facilitator (ITF)

ITF (The Industry Technology Facilitator) is a not-for-profit organisation owned and supported by 14 major global oil & gas operating companies and 6 service companies (the 'members'). ITF is the vehicle through which the members fund joint industry projects that meet the technology needs of the upstream oil and gas industry. ITF has the remit to facilitate the **research, development, and application** of new, high impact technologies that will increase overall hydrocarbon recovery from mature and developing basins.

To date, ITF has launched over 115 Joint Industry Projects representing a direct investment of over £32 million. For further information about ITF click on www.oil-itf.com.

ITF Contacts

If you would like to discuss any matters related to this call or any other issue related to ITF, please contact any of the following people:

Contact	Role	E-mail	Telephone
David Liddle	Technology Manager	d.liddle@oil-itf.com	+44(0)1224 853403
Ryan McPherson *	Technology Analyst	r.mcpherson@oil-itf.com	+44(0)1224 853410
Adele L'Etang	Technology Analyst	a.letang@oil-itf.com	+44(0)1224 853407
Keith Mackie	Technology Analyst	k.mackie@oil-itf.com	+44(0)1224 853411
*" * " Denotes that Ryan McPherson is the appointed Theme Manager for this programme and should be your first point of contact.*			

ITF, The Enterprise Centre, Exploration Drive, Bridge of Don, Aberdeen, UK, AB23 8GX

Theme: Technologies for Ultra Deepwater

Call for Proposals

Specific Technology Needs

(Any proposal submitted to ITF must address one or more of these identified needs.)
(Ultra Deepwater (UDW) is defined as >1500m)

Ultra deepwater Installation and Mooring Techniques

***Background**:*
Ultra deepwater installation is probably one of the most demanding challenges faced in this segment of the industry. The industry is concerned with the ever increasing cost of installing equipment at extreme depths. The cost of large installation barges combined with the limitations of steel wire ropes leads to a requirement for alternative technologies which challenge convention. Coupled with these challenges is the need to develop reliable mooring system for surface support equipment when operating at such depths.

Requirements:

- Increased speed and ease of installation and seabed construction
- Reduction of installation costs
- Low footprint lifting and hoisting for smaller elements (<250Te)
- Reliable mooring technologies for harsh environment floating hosts
- Offloading systems for FPSO/FLNG
- Sustainable use of synthetic cables and fibre ropes for mooring and lifting

Subsea Power

***Background**:*
As plant is moved onto the seafloor, the scale of equipment increases, and step-out distances increase getting adequate power systems to the facilities is a major challenge. Hence, the industry is seeking potential for local power generation and improved reliability in all power generation and distribution equipment.

***Requirements**:*

- Subsea power generation, transmission, and distribution
    - o >132kV
    - o Low frequency transmission (AC v DC?)
- Reliable connection systems; dynamic power cables
- Development of autonomous subsea system
- Power supply to long and deepwater step-outs
    - o DC>AC subsea power conversion for subsea to beach
- Umbilical-less high density subsea power

Control and Monitoring

***Background**:*
The challenges of meeting increased capacity and reducing downtime are always raised and one way in which the industry is moving is towards greater automation in the processes and techniques that are employed. Inevitably this will bring greater requirements for improved techniques in control and monitoring; the following have been identified as areas for improvement in ultra deepwater applications.

Requirements:
- Real time monitoring/sensor feedback
- Umbilical-less high bandwidth communications
- Development of wireless and fibre optic techniques
- Robust and reliable control and communication equipment
- Remote/automated control of subsea equipment
- Subsea plant condition monitoring

Risers and Tubulars (inc. New Materials)

***Background**:*
As the industry moves to greater depths the limitations of some conventional design techniques are being realised. The deepwater applications are also bringing new challenges in the choice of materials; it is time to start looking at new materials and applications to meet these challenges.

Requirements:
- Materials for flexible risers and steel tubulars
  - High strength lightweight materials
- Flow line materials
- Application of new materials and protection coating systems
  - Self healing materials
- Riser tension and pressure challenges

Ultra Deepwater Intervention

***Background**:*
Maximum recovery will be a very important consideration in new ultra deepwater developments. Reliability and low cost intervention will be very much on the agenda.

Requirements:
- Inspection, Repair and Intervention
  - Low cost seabed interventions
  - Manned (dry) intervention
  - Diver-less (remote/automated) intervention
  - Diver-less hot tap
  - Pipeline maintenance
- Low cost light well (down-hole) intervention
- Riser inspection and intervention
- Temporary storage and handling

Subsea Processing for UDW

Background:
Subsea developments have the potential to save on capital investment; however, putting facilities on the seabed presents new challenges, not least in dealing with the hyperbaric conditions at great depth. Subsea systems are emerging and have been deployed at depths up to 1000m and just beyond, but developments are moving into the ultra deepwater range 1500-3000m where the limits of subsea technology are needed to be pushed even further.

Requirements:

- Subsea separation and pumping
- Bulk water solids removal
- Sand management
- Seawater injection (raw or otherwise)
- Multiphase subsea pumping and metering (including heavy oil)
- Subsea gas compression
- CO2/H2S removal and treatment
- Ultra long distance tie-backs (>400km; including slope and gravity issues)
- Flow assurance for long distance tie-backs
- Subsea facilities and subsurface systems for HPHT (>15,000psi and 200°C)

Miscellaneous

Background:
The above sections represent the major areas under this call; however, we are willing to accept proposals of any nature in the ultra deep water segment provided they offer significant benefits in terms of cost reduction, increased recovery, enhanced safety, and benefit to the environment. Some other possible areas that could be covered are:

- Seabed drilling
- Insulation
- UDW Well intervention
- Floating processing
- Asset security (against terrorism)
- Health, safety and, environment