Global Opportunities

Japan

Subsea Expo 2017

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Scottish Enterprise

**Internationalisation**
Helping more companies in more sectors to become exporters, and helping existing exporters to grow their overseas sales

**Innovation**
Encouraging more companies to invest in R&D, in other forms of innovation and in efficiency improvements, and helping companies maximise the returns on their investment

**Investment**
Supporting companies to invest in new plant, machinery and buildings, and helping companies access the finance needed for growth

**Inclusive Growth**
Attracting skilled jobs through inward investment, and improving the leadership and entrepreneurial skills of our companies and people

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Scottish Development International

What we offer

- Guidance on the best routes to international markets
- Access to international market opportunities research
- Assistance with shaping your international strategy
- Facilitate connections and business relationships with partners
- Global networking support
- One-to-one international trade adviser support
- Country guides and fact sheets
- Access to events, trade missions and webinars
- Practical, tailored services to new or existing exporters based in Scotland
Japan’s reliance on imports for natural gas unlikely to change in the near-term.
A sharp increase in LNG imports following the 2011 tsunami and the resultant shutdown of most of Japan’s nuclear power generation.

Source: Thomson Reuters Datastream
Japan is the world’s largest importer of LNG accounting for 34% of imports globally; this is expected to continue for years to come, particularly as the restart of nuclear power plants can take a long time to clear the various regulatory and social hurdles necessary.
Despite being the world’s largest importer of LNG, Japan pays a comparatively high unit rate.
Methane gas hydrates are considered to be available in abundance across the world but Japan has a more pressing need for development than many due to lack of domestic conventional hydrocarbons.
Methane gas hydrates occur beneath the seabed at various depths and while they look like pieces of snow or ice, locked within their crystalline structure is a flammable gas. Although methane gas hydrates are unstable at lower pressures and higher temperatures, they are not spontaneously combustible. This picture depicts disassociating methane gas hydrates that were artificially ignited. Burning of methane gas hydrates releases CO2 and melt water. In order to access this valuable offshore resource, Japan has initiated a number of national initiatives to try to master the identification and harvesting of methane hydrates.
MH21 Research Consortium created in 2001

- Phase 1 (2001 to 2008) – exploration and modelling
- Phase 2 (2009 to 2015) – developing extraction methodology and production trials
- Phase 3 (2016 to 2020) – commercialisation
As part of the MH21 activity, JOGMEC started a flow test applying the depressurization method and confirmed production of methane gas from methane hydrate layers in March 2013.

JOGMEC have been leading on analysis of data from the flow test and there are plans to complete a second offshore production test in the next 12 months.
Japan Subsea Development

- Japan Methane Hydrate Operating Co. established October 2014
• "Submarine Resources Research Project" launched in April 2011

• Hydrothermal deposits
• Cobalt-rich crust
• AUV/ROVs for submarine resource exploration

Encourage innovation in the area of ocean development to create competitive ocean industries as well as to secure natural resources for the domestic market
Next-generation ocean resources research system - Make access to a deep seabed to explore potentially available mineral resources.

Buoyancy systems

Subsea production system

Next-generation ocean energy and mineral resources production systems - Systems to produce ocean resources.

Offshore logistics

Robots remote-controlled from a ground station through connected cables

Seabed mining production system

Technology development needs identified by JAMSTEC

Subsea cable-based seabed monitoring system

Autonomous Underwater Vehicle (AUV) system

Underwater glider

Next-generation environmental impact management systems - Systems to monitor environmental impacts caused by the development of resources and to preserve and control coast areas and remote islands.
Opportunities

- UK output circa £9 billion
- 43% of global subsea market
- Growth due to both export and domestic market
- North East Scotland dominates output due to presence of large contractors

Global Subsea Market worth £21 billion
Expected to rise by 60% over next 5 years
Opportunities

• Over 300 subsea companies, employing more than 30,000 people

• Serving multiple sectors:
  • Oil & Gas
  • Defence
  • Renewables
  • Shipping
  • Aquaculture

• Range of specialist activity areas:
  • Manufacturing
  • Consultancy
  • Services
Opportunities

• Initial activity in Japan around sensor technology opportunity
• Engagement with relevant authorities, research organisations, operators and large industrial corporations
• Visit to Japan by CEO of Subsea UK in December 2014
• Trade missions to Japan in October 2014 and November 2015
• Japanese delegations to Subsea Expo 2014, 2015 and 2016
• Ongoing engagement, continued interest from Japanese industrial corporations and other partner organisations, some visiting Subsea Expo 2017
• Major Japanese companies working with Scottish research facilities and supply chain companies to develop subsea technologies
• Planned trade mission to Japan in June 2017
Opportunities

Delegation of companies visiting Subsea Expo 2017 from Japan

- **Mitsui Engineering & Shipbuilding** - Interested in meeting with technology/product companies who can help with development of their subsea vehicles and offshore services business streams
- **Yokogawa Electric** - Looking to work with companies/researchers on development of subsea/offshore monitoring capabilities
- **Kawasaki Heavy Industries** - Planning sea trials of their AUV in Autumn 2017 at the Underwater centre in Fort William and would welcome supply chain companies interested in being engaged with that activity with a view to future development opportunities
- **Taiko Kaiko** - Looking for partner with experience of API pumps
- **Shimadzu** - Seeking collaboration partners across a number of subsea technology areas
- **Nagasaki University**
- **City of Yokohama**
- **City of Kobe**
Opportunities

Please visit the Scotland Japan Subsea Partnership Booth on Stand No.39

Mr Junichiro Abe

Mr Shingo Tomomatsu
Thank You

Murray Bainbridge

murray.bainbridge@scotent.co.uk

07885 264386