Scottish Enterprise

Oil & Gas diversification opportunities:

Heating & Cooling

Heating is a potential high growth industry that exhibits some crossover with the oil and gas supply chain in the areas of district heating and geothermal. National and international climate change targets are driving the development of low carbon heating and cooling solutions in Scotland, the UK and elsewhere, but it is not yet clear which of these solutions will achieve widespread adoption over the long term.

Key Facts:

- The generation of heat for domestic, commercial and industrial purposes accounts for 55% of Scotland's total energy use. Transport accounts for 24% and electricity accounts for 21%.
- Scotland generated 3.8% of its heat demand from renewable sources in 2014 and has a target to generate 11% by 2020.
- The cost of replacing Scotland's existing heating equipment over 40 years to 2050 has been estimated at £100bn.
- Scotland is the lead region in the UK for renewable heat projects, gaining 19% of the Renewable Heat Incentive funding to date.
- The UK Government is increasing the annual budget of the Renewable Heat Incentive from £430m in 2015/16 to £1.15bn by 2020/21.
- The UK Government has committed £320m to support up to 200 heat network projects across England & Wales, which represent combined investment of approximately £2bn between 2015 and 2025.
- The EU's geothermal heating & cooling capacity is forecast to rise from 15GWth in 2013 to 40GWth by 2020.
- The global heat technologies market is forecast to grow to £308bn by 2050.

UK Opportunities

The heat sector is set to change significantly in response to government policies to address climate change targets. The most significant near term opportunity for oil and gas companies is the development of Scottish and UK heat networks (district heating). As of 2015, there were approximately 10,000 Scottish homes connected to district heating, 122 Scottish heat networks, and a further 103 projects in development with a combined value of between £190m and £480m. The Scottish Government has a target to connect 40,000 Scottish homes to district heating by 2020, and is supporting projects via the District Heating Loan Fund and various other funds for innovate low carbon heating solutions. The UK Government is supporting the development of heat networks in England and Wales through the recently announced Heat Networks Investment Project, which will provide £320m of capital funding between 2016 and 2021.

International Opportunities

Several European countries including Finland, Denmark, Sweden and Poland already make extensive use of district heating and have well established supply chains. While the opportunities for new entrants are limited in these markets, the emergence of geothermal heating projects may present a point of entry for some Scottish supply chain companies. France has experienced considerable growth in geothermal heat in recent years, driven by supportive policies such as the Renewable Heat Fund, which has seen around 170,000 Parisian households connected to geothermal heat installations. The country is also pursuing new geothermal heat technologies, and opened its first deep geothermal and marine geothermal plants in 2016. Other European nations pursuing geothermal heat include Germany, Greece, Hungary, Italy, Iceland, the Netherlands Sweden, and Switzerland. Turkey, Indonesia, Mexico and the USA are also emerging markets for geothermal heat.

Discipline	Skills & Expertise Required
Studies & Surveys	Including geological mapping, geophysical data acquisition, geochemical analysis, subsurface assessments, geoscience studies, and environmental impact assessments.
Drilling	Including well engineering and design, drilling machinery and equipment, and waste treatment and disposal.
Pipework	Including components, inspection, repair, cleaning and maintenance.
Sensors	Including flow meters, controls, monitoring and communications.
Wastewater Management	Including treatment and disposal.

Market Entry

While the heat market is forecast to grow significantly, the wide variety of heating system options and the relative immaturity of many low carbon solutions means that there is considerable uncertainty about how it will evolve over the longer term. However, district heating is receiving strong policy support in the UK and geothermal is an emerging technology that is being pursued by a number of nations. Scottish oil and gas supply chain companies seeking to enter the heating sector should consider:

- Investigating synergies with existing product and service capabilities and low carbon heat markets;
- Offering niche technologies and services that are not currently available within the existing geothermal supply chain;
- Collaborating with oil and gas companies already active in the geothermal heat market; and
- Participating in Scottish Enterprise's Low Carbon Heat Expert Support Service.

Further Information & Support

Scottish Enterprise (SE) offers a range of information and support for companies considering diversification opportunities in low carbon heat. This includes regular supply chain events and a Low Carbon Heat Expert Support consultancy service, providing free advice on market opportunities and entry requirements. Further information is available from:
www.scottish-enterprise.com/lowcarbonexpert

Additional information on low carbon heat opportunities is available from:

- District Heating Scotland:
  www.districtheatingscotland.com
- The Association for Decentralised Energy:
  www.theade.co.uk

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