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UK OFFSHORE SALT CAVERN GAS STORAGE DEVELOPMENT

Andrew Stacey
Stag Energy Development Co. Ltd, 49 York Place, Edinburgh EH1 3JD, UK

ABSTRACT

Opportunities in the UK for development of salt cavern gas storage facilities have become constrained by the availability of suitable onshore locations that can be brought forward in a timely manner. In response to this concern the UK Government commissioned an independent geological report to clarify the potential for offshore salt cavern gas storage, and is now introducing improved legislation to encourage offshore gas storage development.

This paper provides a description of the Gateway gas storage project which is located in the East Irish Sea in water depth of 16m. Gateway is capable of providing approximately 1.1 billion cubic metres (bcm) of working gas, and injection and withdrawal rates of 28 million cubic metres per day (mcmpd). The facility consists of 20 salt caverns, connected via a 30 km pipeline system to an onshore compressor station, and onshore national gas transmission pipeline system at Barrow-in-Furness in NW England.

The challenges in developing an offshore salt cavern storage facility are addressed, and the key potential advantages and disadvantages identified. A description of the surface facility design is provided, together with some of the key parameters in determining its economic competitiveness. A summary is included of the health and safety, and environmental issues, which are peculiar to an offshore salt cavern gas storage development, and which impact both location selection and design.

Keywords: United Kingdom, Caverns for Gas Storage, Seismic, Drilling, Brine Chemistry