

Lowering downstream entry barriers for natural gas: Small scale LNG distribution in Norway

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ABSTRACT

Norway has abundant natural gas resources, but limited domestic use of it. Developments in the overall energy sector and its deepening integration with European gas and power grids indicate that increased use of natural gas in the country would be desirable from economic and environmental viewpoints. The country's topography, small population and widespread use of electricity for space heating poses a challenge to the introduction of natural gas, since any conventional pipeline project would face poor investment economics resulting from high investment costs and low gas demand for many years.

In response to this challenge, two domestic gas firms have developed an LNG-based distribution concept for natural gas. The concept provides distribution of natural gas to small and dispersed consumers at much lower investment costs than a pipeline grid, thus enabling acceptable economics. LNG-based natural gas distribution is also established in certain other countries, including Spain, Scotland and USA. The concept can be of interest to other countries and energy consumers who desire to introduce natural gas in its energy mix while being constrained by high investment costs.

In addition to conventional uses, natural gas has also been introduced as a fuel for coastal shipping. Substantial amounts of joint work has been invested by the maritime authority, shipping firms and shipbuilders in developing standards for the safe use of LNG in ferries and oilfield supply vessels.

The paper reviews the current status of natural gas use in Norway, its role in the energy system as well as the political and regulatory aspects. Comparative economics of LNG-based natural gas distribution are reviewed, highlighting the role of LNG distribution either as the long-term solution or as a fore-runner of pipeline systems to be established if and when justified by demand developments. Implications for the competitiveness of markets are reviewed, with respect to inter-fuel and intra-fuel competition and the need for government intervention.

The paper identifies certain criteria for the benefits of LNG-based distribution concepts in other regions worldwide.

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