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## **New JRC study on Liquefied Natural Gas: advantages and drawbacks**

**A new report from the European Commission's Joint Research Centre (JRC) reveals the likely impact of increased reliance on Liquefied Natural Gas (LNG) and more shipments of LNG to the European Union. The report concludes that LNG may remain an expensive energy option for the foreseeable future, with both affordability and geo-political issues expected to remain key factors in this area of the energy sector. The report is intended as just one source of information in a number of elements to be taken into consideration in the development of EU energy policy.**

The sharp rise in energy prices and temporary cutbacks in pipeline gas imports from Russia in the recent past have raised concerns about the security, diversity, reliability and affordability of the EU's gas supply. Delivering LNG by sea has been seen by many as a solution, and over the last decade LNG has become one of the world's fastest-growing sources of energy.

The JRC Reference Report, entitled *Liquefied Natural Gas for Europe – Some Important Issues for Consideration*, is based on research by the JRC Institute for Energy (IE). It examines the benefits and drawbacks of the EU's greater use of LNG shipments by 2020 in five areas:

### **1. Security and diversity**

LNG represents 15% of the EU's gas imports and contributes to its energy security and diversity of supply. But increased use of LNG might negate this positive effect, because supply is heavily concentrated in the hands of a small number of countries. The report expresses concern regarding the recently formed Gas Exporting Countries Forum (GECF), which plays a major role in the sector, controlling +/-85% of LNG supply today with respective implications on world LNG supply patterns.

### **2. Affordability**

LNG energy projects are among the most expensive and technically complicated, so the EU is likely to face high energy prices if it makes greater use of LNG shipments. Affordability will be therefore an important consideration in the EU's fuel-mix decisions concerning LNG.

### **3. Energy efficiency and greenhouse gas emissions**

The LNG supply chain tends to be more energy and greenhouse gas intensive than the supply chain for pipeline gas, because of the extra processing steps. The difference is narrower when LNG is compared to remote pipeline deliveries. Typically the greenhouse gas performance gap is smaller than the energy efficiency gap, because of the unavoidable methane leaks from pipelines. LNG may be more favourable with respect to greenhouse gases compared to pipeline supplies under certain conditions, e.g. when the alternative is very remote pipeline deliveries of gas or when LNG is brought to the end-users in liquid form and then re-gasified on-site.

#### **4. Quality**

LNG is of superior quality to pipeline gas, because it is purer, has higher methane and energy content, and has a more stable composition. However, the superior quality of LNG, obtained at a higher cost in terms of energy and greenhouse gas emissions, actually represents a problem in Europe today. This is because most of Europe's end-use facilities are designed for the lower quality of pipeline gas that prevails in the gas consumption mix today. With LNG's share of the EU's gas imports expected to increase, the EU may be led to consider changes to its gas quality specifications or investigate dedicated LNG applications, for example as a fuel for transport, though this is by no means certain.

#### **5. Shipping**

LNG shipping costs tend to be the most volatile cost component in the overall LNG supply chain and have a major impact on the competitiveness of LNG supplies. LNG is unlikely to cause significantly more shipping congestion, even if more ships are needed to meet greater demand, unless more stringent safety and security rules for handling LNG carriers are introduced. The ships are likely to face the challenges of skilled crew shortages. However, LNG ships will need maintenance and hence, will offer employment opportunities to shipyards, especially in Southern Europe.

The research behind the report was carried out in the framework of the JRC's ongoing research in the assessment of energy technologies and systems, in liaison with the European Commission's Directorate General for Energy and Transport. The report does not engage the European Commission in any way as regards future policy decisions.

To download the Reference Report *Liquefied Natural Gas for Europe – Some Important Issues for Consideration*, visit: [www.jrc.ec.europa.eu/rr](http://www.jrc.ec.europa.eu/rr).

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