THE DEPLOYMENT OF LNG IN CONTINENTAL TRANSPORTS A TOOL FOR GREEN INTEGRATION OF EUROPEAN PORTS-CITIES?
Antoine Beyer

To cite this version:
Antoine Beyer. THE DEPLOYMENT OF LNG IN CONTINENTAL TRANSPORTS A TOOL FOR GREEN INTEGRATION OF EUROPEAN PORTS-CITIES? . AIVP, May 2016, Rotterdam, France. halshs-01664465

HAL Id: halshs-01664465
https://halshs.archives-ouvertes.fr/halshs-01664465
Submitted on 14 Dec 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
Liquefied Natural Gas (LNG) is considered as a transitional fuel towards low-emission solutions. The solution is technically mature and economically feasible for heavy trucks, inland barges and SSL-vessels.

This research tries to explore the potential impacts of the LNG technologies for further territorial developments in energy shift and technological “trans- and cross-fertilisation”.

LNG, THE CARGO THAT BECAME A FUEL

- A solution for transport purpose: at -163°C, methane occupies only 1/600 of its volume.
- Natural gas: a huge supply (worldwide 200 years gas-supply /50 years oil-supply) cheaper than oil.
- A greener energy compared to other conventional fuels –100% Sox, 95% Nxx, 40% fine particles, 20% CO2 less than heavy fuel oil.
- Maritime transport industry is committed to reducing its emissions of air pollutants and greenhouse gases cf. Law Sulphur European Directive (2005/33/EC) at the beginning of 2010 in ECA (Emission Controlled Areas) the English Channel, the North Sea and Baltic.
- Increasing infrastructure availability: expansion in Western Europe for supplying lower emission power plants, in Eastern Europe for more independence vis-à-vis Russian pipe-diplomacy.
- The transport sector: direct advantage from the LNG at the same time cheap fuel and cargo.

But ...

- Oil prices dropped after 2008, so that the replacement of the conventional motor engines is currently too expensive to be implemented at large scale.
- Transport firms are skeptical regarding the high investment in adapted technologies for further territorial developments in energy shift and technological “trans- and cross-fertilisation”.
- LNG acceptance lies on more demanding environmental legislation.
- Oil companies are skeptical regarding the low exploitation costs.
- Mutualizing the resource benefits urban and regional actors as the flow of the LNG can be considered as networking tool for European ports.
- LNG refueling capacities.
- The prevention of risks may lead to segregation of flows to access the port areas.
- LNG - A TOOL FOR A GREENER CITY?

LNG will step a central role in future propulsion fuel for maritime transports. Societal applications may be developed for continental and urban purposes. As such, the LNG fuel technology can be considered as an networking tool for European ports. It has to be understood from a technical and economic point of view as well as from an integrated territorial project.

CONCLUSION: WHAT CAN WE LEARN?

For port-cities, LNG can present local advantages:

- In the port area itself, LNG helps reducing the emission for local navigation and for the adapted handling and lifting vehicles.
- It may supply local demand for industrial plants that are not connected to existing pipes.
- Materializing the resource benefits urban and regional actors as the flow of the LNG can be considered as networking tool for European ports. It has to be understood from a technical and economic point of view as well as from an integrated territorial project.
- LNG - A TOOL FOR GREEN INTEGRATION OF EUROPEAN PORTS-CITIES?

RHINE MEUSE DELTA, FRANCE

Sources


DANISH MARITIME AUTHORITY (2003), North European LNG Infrastructure Project: A Feasibility study for an LNG Filling Station Infrastructure and test of recommendations, Copenhagen, 224 p.


GERMAN ENERGY AGENCY (2014), LNG in Germany: Liquefied Natural Gas and Renewable Methane. Sectoral applications may be developed for continental and urban purposes.

CONCLUSION: WHAT CAN WE LEARN?

For port-cities, LNG can present local advantages:

- In the port area itself, LNG helps reducing the emissions for local navigation and for the adapted handling and lifting vehicles.
- It may supply local demand for industrial plants that are not connected to existing pipes.
- Materializing the resource benefits urban and regional actors as the flow of the LNG can be considered as networking tool for European ports. It has to be understood from a technical and economic point of view as well as from an integrated territorial project.
- For the gas network companies the new offer makes it possible to rebalance more easily the pressure at the end of the pipes.
- The technical expertise in gas may also benefit to global energy transition in urban areas as the infrastructure can be used as means of storage intermittent sources (wind – sun) of energy by compressing or liquefying or valorising biogas.
- Locally synergies may develop. In some places, they already exist in an ecological industrial perspective (energy exchange).

But ...

- The industrial hazards introduced by handling highly inflammable gas may be taken into account in the location choice in the port area as well as in the neighboring urban spaces.
- Their development may be rejected by a part of the public opinion.