

ELENGY answer to the Consultation on an EU strategy for liquefied natural gas and gas storage

General remarks

Natural gas is well placed to take an important role in the EU future energy mix. However there are currently a lot of uncertainties and it is thus crucial that EU Energy and Climate Policy recognize this important role, so that the EU gas market remains attractive in the long term.

Indeed, there is a concern about the ongoing ambiguities of European Commission DG ENER policies, envisaging the need for more gas infrastructure investment while at the same time reflecting reluctance to acknowledge the vital role of gas in the energy mix. A clear example of the issue is the EU gas demand scenario which is presented by DG ENER in the consultation, and which envisages a decrease of the EU gas demand by 30% between 2015 and 2035, in line with the EU key targets for 2030.

Therefore ELENGY considers that before thinking at defining a LNG strategy for Europe, the European Commission should design a **genuine gas strategy for Europe** that would provide appropriate regulatory environment and confidence for the development of the EU natural gas market in the long-term.

LNG in the EU today

Question 1: *Do you agree with the assessment for the above regions in terms of infrastructure development challenges and needs to allow potential access for all Member States, in particular the most vulnerable ones, to LNG supplies either directly or through neighboring countries? Do you have any analysis or view on what an optimal level/share of LNG in a region or Member State would be from a diversification / security of supply perspective? Please answer by Member state / region*

- ELENGY would first like to say that it agrees with the optimization of the gas infrastructures at the European level and with the efficient use of their complementarities. Moreover ELENGY would like to recall certain features of LNG. Indeed **LNG is a highly flexible way for transporting gas**:
 - **LNG is transported by ship** which enables LNG to be directly delivered closest to where gas is needed;
 - **LNG can be easily reloaded from almost any EU LNG terminals¹** and sent by ship to any other EU terminal, closest to where gas is needed;
 - **LNG cargoes cover a wide range of sizes**, from extra large (265 000 m³ LNG) down to quite small (i.e. small scale LNG², with cargoes down to a few thousand m³ LNG).

¹ In particular, all LNG terminals in the Iberian peninsula propose reloading services.

² With regard to small scale, it should be noted that LNG can also be transported by trucks (20 to 40 m³ LNG).

These special features make LNG infrastructures per se similar to “**virtual floating pipelines**” that can enable to avoid long, locked and costly pipelines through mountains and rivers, depending on the geography (cf. fig 1). “**LNG virtual floating pipelines**” may be an efficient alternative to physical pipelines, in terms of cost, delay and risk of stranded asset (see below Q.2).

These LNG specificities are paramount in the EU context because a large part of EU territory is surrounded by seas (cf. fig 2).

⇒ **The highly flexibility of LNG transportation shall be the basis for any EU LNG Strategy.**

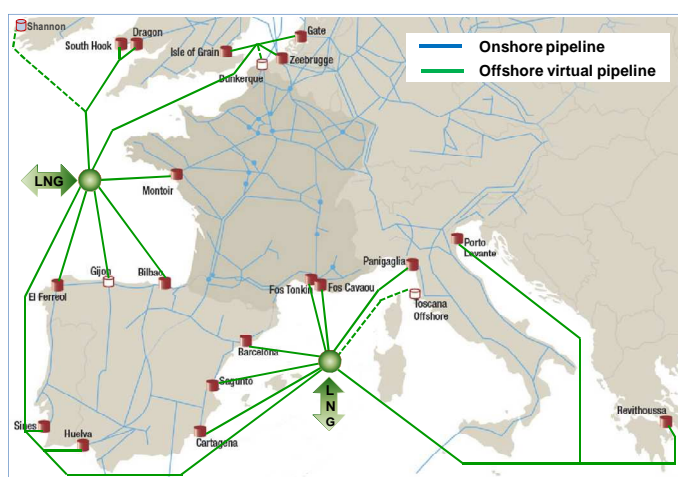


Fig.1. Example of LNG Virtual Floating Pipeline in Western Europe.



Fig.2: EU is surrounded by several seas

- ELENKY considers that **potential access for a Member State, in particular the most vulnerable ones, to LNG supplies** either directly or through neighboring countries **should be carefully examined on a case by case basis**, through a genuine and fair cost benefit analysis (CBA).

From a general perspective, the response to diversification and security of supply (SoS), first passes through the best use of existing infrastructures and the development of appropriate LNG import infrastructures closest to the targeted markets, in particular the vulnerable Member States, by taking advantage of the highly flexibility of LNG transportation.

It is paramount to optimize the costs in order to maintain the competitiveness of the gas.

- Regarding some of the assessments and findings mentioned in the consultation, ELENKY would like to make the following comments:
 - **ELENKY strongly disagree with the sentence of the LNG consultation** on North-South Interconnections in Western Europe, stating that *“the LNG capacity available in the Iberian peninsula cannot reach the rest of the EU because of bottlenecks and network constraints between Spain and France and within the French network (mainly south to north)”* (cf. page 3, § 2.3).

This statement gives a highly distorted picture of the situation:

- ✓ **Where are the bottlenecks and network constraints that prevent gas to flow from Spain to France?!?**

There are currently two interconnecting gas pipelines³ with a total physical bidirectional capacity of 5,5 bcm/y. **It has never been used from Spain to France!!** (cf. fig 3)

³ The two Interconnection Points (IPs) at Larrau and at Bariatou are now merged under a Virtual Interconnection Point (VIP) called Pirineos.

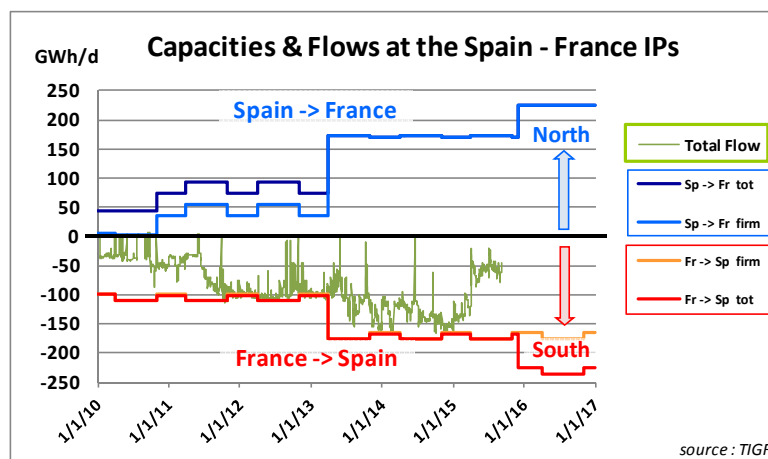


Fig 3

- ✓ To the contrary, Spain has always used these interconnections to import gas into Spain. Thus in 2014, more than 4 bcm have been physically imported from France to Spain.

Therefore, **the effective South to North capacity is about 9,5 bcm/y** ($= 5,5 + 4$), as the flow to France has first to compensate the flow to Spain, before becoming physical.

- ✓ In addition, it should be recalled that the total interconnection capacity will be increased by 2 bcm/y on December 1st 2015 (from 5,5 to 7,5 bcm/y). **Thus the effective South to North capacity will be about 11,5 bcm/y** ($= 9,5 + 2$) **by the end of the year!**
- ✓ **It is misleading to compare without any caution**, the LNG regasification capacity in the Iberian peninsula and the pipeline interconnection capacity from Spain to France.

Spain has developed its LNG regasification terminals, **without any consultation of the market**. As a result, a LNG terminal (El Musel) is now **mothballed** since the end of its construction in 2012 (which didn't prevent the Bilbao LNG terminal extension to be started at the same time, just 200 km away!); moreover the **capacity reservation in the other LNG terminals is less than 10 %** over the coming years⁴, including in the long run!

The question should not be how to find at any price a use for these unnecessary investments. It should simply be whether it makes sense for market players to unload their LNG cargoes thousands kilometers away from the targeted markets, and for EU and the transit countries to pay for that, while LNG can easily be delivered by ship closest to those markets!!

- **ELENGY totally disagrees with the sentence of the LNG consultation** stating that *"The High-Level Group for South-West Europe looks at bottlenecks and infrastructure options to allow the substantial LNG regasification capacity in the Iberian Peninsula to be made available for the rest of the EU"* (cf. page 4, § 2.7).

This statement is highly misleading with respect to the aim of the High Level Group:

- ✓ According to the Memorandum of Understanding signed on 30 June 2015 (establishing the High Level Group), the High Level Group should prepare an Implementation Plan of the Madrid Declaration which *"for gas should focus on the development of the Eastern axis, allowing bidirectional gas flows between the Iberian Peninsula and the French gas system"*.
- ✓ Neither the Madrid Declaration nor the Memorandum of Understanding mention anything about *"infrastructure options to allow the substantial LNG regasification capacity in the Iberian Peninsula to be made available for the rest of the EU"*!

⁴ Source: LSOs websites

- With regard to level/share of LNG in a region or Member State, from a diversification/security of supply perspective, ELENGY considers that **there is no common optimal level/share for all regions**: each region/Member State is different and in each of them LNG may play different role, depending on its location, the nature and the characteristics of the downstream gas infrastructures as well as of the demand and the supplies...

An optimal level/share of LNG in any particular area should be determined by the market.

Question 2: *Do you have any analysis (cost/benefit) that helps identify the most cost-efficient options for demand reduction or infrastructure development and use, either through better interconnections to existing LNG terminals and/or new LNG infrastructure for the most vulnerable Member States? What, in your view, are reasons, circumstances to (dis)favour new LNG investments in new locations as opposed to pipeline investments to connect existing LNG terminals to those new markets?*

- Any analysis relating to investment in pipeline from existing LNG terminals vs. investment in new LNG terminal should take into account the geographical location of the infrastructures and the one of the targeted market, the demand of that market, as well as the risks to be covered and their probability when security of supply (SoS) is at stake.

The consultation indicates that the most vulnerable countries are countries mainly dependent on one supplier with no or insufficient access to LNG (cf. page 3, § 2.2), and that they are located in the Baltic area and in Eastern Europe⁵. Thus the risk is about Russian supplies, and the potentially affected EU regions are explicitly the most distant ones from Spain.

Russian imports into these most vulnerable countries are about 20 bcm (2014), i.e. only 5% of the total EU gas demand. Such gas quantities could be supplied through 3 LNG terminals of the size of El Musel LNG terminal⁶.

On the other hand, a new axis based on Midcat project (7,5 bcm/y) and interconnecting the Iberian Peninsula just to Germany, can be roughly evaluated to 3 B€. This is equivalent to the costs of 8 LNG terminals like El Musel,.. only for a third of the 20 bcm above mentioned!

Therefore, arguing that Europe may benefit from the substantial LNG regasification overcapacity located in the Iberian Peninsula is an economical non sense! This would mean investing billions of euros in gas pipelines in Iberian peninsula, France and other neighboring countries, whereas the needs are located at the opposite side of EU. Investments in pipelines and LNG terminals should be located near to the needs, i.e. in the east part of Europe, taking advantage of the high flexibility of LNG transportation. **No need for complicated CBA; simply common sense!**

- ELENGY would also like to highlight that **existing LNG infrastructures could be a zero cost alternative to investment in new interconnection pipelines.**

This is for example the case for the so called “small Midcat pipeline” (3,8 bcm/y) between Spain and south of France that could be efficiently replaced by a **LNG virtual floating pipeline** between Bcelona (Spain) and Fos-Cavaou (France), using the available capacities in both LNG terminals, as well as cargo diversions or reloadings; **without any risk of stranded assets.**

- It should be noted that developing LNG infrastructures in countries that don't have presently access to LNG, will help them to propose small scale LNG services. This will allow to make gas

⁵ Note: Romania has its own domestic gas production; only 0,3 bcm were imported from Russia in 2014 (to be compared to 11,6 bcm in gas demand).

⁶ El Musel LNG terminal: 7 bcm/y of LNG regasification capacity ; 375 M€ of investment (source Enagas).

available to energy users that are not currently connected to the network. This will also contribute to the development of LNG as a clean alternative fuel for ships and trucks.

- As the needs of the most vulnerable countries are related to SoS, one should seriously consider LNG Floating Storage and Regasification Units technology (FSRU). Indeed, **FSRU presents the tremendous advantages** of being able to be installed quite rapidly, and **above all of being reusable**. In this respect, FSRUs are a much better alternative than interconnection pipelines or onshore terminals: by nature, such onshore infrastructures, if built for SoS purposes, will be rarely if ever used, and that's all. On the contrary, an FSRU that is not used, may be disconnected and moved to another location in Europe or elsewhere, or it can simply be used as a LNG carrier for trading.

From a general perspective, for solving issues that may happen with a low probability (e.g. a few days per year if not per decades), one should favor the project with the lowest Capex.

- Finally, with respect to the CBA in itself, ELENGY would like to stress that the methodology should be clear, transparent, realistic, fair and shared by a large panel of stakeholders, including in particular market players, gas infrastructure operators other than TSOs (i.e. LSOs and SSOs) as well as leading energy experts (eg IEA, energy consulting companies).

In this regard, the present ENTSOG / JRC methodology appears perfectible. Indeed, it is based on some overly simplified hypotheses which led to some unpersuasive results, in particular regarding LNG, and deserves to be reviewed in-depth.

Question 3: *Do you think, in addition to the already existing TEN-E Regulation, any further EU action is needed in this regard? Do you think the use of LNG gas and existing LNG infrastructure could be improved e.g. by better storage possibilities, better network cooperation of TSOs or other measures? Please give examples*

- ELENGY considers that there are already enough regulations. Before adding any new EU further action, it is important to ensure the timely implementation of the existing EU legislation.
- Most investments should be required by the market. Nevertheless, some incentives could be introduced for new and innovative products, such as FSRUs and small scale LNG.
- Reinforced cooperation between LSOs and TSOs could foster a better use of LNG terminals, by a joint optimization of their respective technical transport capacities (e.g. capacity interruptibility management).
- With respect to storage, LNG in tanks is a good way to provide flexibility, provided LNG tanks are located not too far from the consumption areas. Indeed in order to maintain the competitiveness of the gas, one should avoid to build pipelines that would only be used from time to time.

For instance, storage offered by LNG terminals in the Iberian Peninsula are far from being the best placed to provide flexibility in France or further north, since they are remote from demand areas there.

Question 4: *What in your view explains the low use rates in some regions? Given uncertainties over future gas demand, how would you assess the risk of stranded assets and lock-in effects (and the risk of diverting investments from low carbon technologies such as renewables and delaying a true change in energy systems) and weigh those against risks to gas security and resilience? What options exist in your view to reduce and/or address the risk of stranded assets?*

Low utilisation rates:

- LNG is a global market. LNG is traded all around the world and today it is usual to see how LNG cargoes are easily diverted to other parts of the world, changing destination according to price signals.
- The high prices in Asia and South America during the last years, together with the EU economic crisis and cheap coal/CO2 prices, has caused that LNG originally intended to the EU gas market and purchased FOB has been diverted to other parts of the world (i.e. Asia and South America). Moreover, EU LNG terminal operators developed re-export services enabling shippers to reload cargoes delivered at the terminal (mainly DES). This explains even more the small utilisation rate.
- The LNG market is constantly evolving and LSOs are also evolving and adapting to the new market needs. LNG will arrive to the EU market, provided the EU gas market is attractive and also both clear and consistent EU Energy Policy and adequate price signals are in place.

Risk of Stranded Assets:

- According to IEA, stranded assets are “those investments which are made but which, at some time prior to the end of their economic life (as assumed at the investment decision point), are no longer able to earn an economic return, as a result of changes in the market and regulatory environment.” In addition, they could also be the result of inflated gas consumption projections.
- Regarding LNG terminals as such, a low utilisation rate does not necessarily indicate that an asset is stranded. Stranded assets are those which are not viable from an economic point of view.
- **The risk of stranded assets do exist for LNG, pipeline or storage infrastructures. In some countries it is no more a risk but a reality.**

- **When decided without commitments from the market, LNG terminals are particularly at risk.**

This is for instance the case for **Spain**, where all extensions or new LNG terminals built in the last fifteen years have been decided under national mandatory plans based on forecasts only, **without any consultation of the market**.

Now, El Musel LNG terminal is mothballed since the end of its construction in 2012, and it should remain as such until at least 2020, according to recent public information. Moreover, the **capacity reservation in the other LNG terminals is less than 10 %** over the coming years, including in the long run (see Q.1 above).

Such dramatic situation results from huge mistakes from the Spanish Authorities, regarding gas demand projections under the so-called “mandatory planning”. One could wonder if it is up to the EU and the rest of Europe to pay for correcting them, through an uneconomic, if not unnecessary, gas pipeline project (Midcat axis...) aiming at finding a possible use for the substantial LNG regasification overcapacity developed in the Iberian Peninsula!

- From a general perspective, it should be stressed that **Inflated gas consumption projections can skew the economic evaluation of new projects**. Gas infrastructure investments made in expectation of rising demand are at risk of becoming stranded assets if the increase in gas demand does not materialize.
- In order to limit if not to avoid the risk of stranded assets, infrastructures should be required by the market (via open seasons and economical tests), and commitments should be made by the interested parties on the long term. This would allow to clarify, who takes the investment risks, and who get the profits!

Question 5: *The Energy Union commits the EU to meeting ambitious targets on greenhouse gas emissions, renewable energy and energy efficiency, and also to reducing its dependency on imported fossil fuels and hence exposure to price spikes. Moderating energy demand and fuel-switching to low carbon sources such as renewables, particularly in the heating and cooling sector, can be highly cost-effective solutions to such challenges, and ones that Member States will wish to consider carefully alongside decisions on LNG infrastructure. In this context, do you have any evidence on the most cost-efficient balance between these different options in different areas, including over the long term (i.e. up to 2050)?*

- ELENGY is convinced that natural gas should play a significant role in the future EU energy mix and will provide a valuable contribution in the move towards a low carbon energy system by replacing oil and coal.
- ELENGY believes that there is a much greater role for natural gas / LNG than simply a flexible balancing and capacity backup to variable Renewable Energy Sources (RES) in a properly functioning internal energy market. Natural gas /LNG is acknowledged as the strongest enabler of RES. In particular, gas-fired power plants are flexible (time to full power generation capacity) and produce substantially less emissions (CO₂, CO, NO_x, particulates) than their coal or oil equivalent. By switching coal-fired powered plants to gas, EU power sector CO₂ emissions would be reduced by almost 60% .
- Moreover, LNG has specific advantages in relation to its physical characteristics⁷. LNG terminals can provide the highest output over the whole volume. They are an excellent source of flexibility with an output which can be easily modulated on a very short-time and they can be quickly refilled. LNG terminals can also provide peak-shaving services either during winter time or during peak power generation due to low RES production. Moreover the use of LNG as a fuel for shipping or heavy-duty vehicles offers an excellent opportunity for improving the environment footprint of the transport sector.
- Thus, LNG terminals and RES are not competing, they are complementary. LNG terminals are excellent candidates to enable the development of the EU Energy System transformation, playing a key role in a low-carbon economy.

Potential entry barriers for LNG

Question 6: *What in your view are the most critical regulatory barriers by Member State to the optimal use of and access to LNG, and what policy options do you see to overcome those barriers? Have you encountered or are you aware of any problems in accessing existing LNG terminal infrastructure, either because of regulatory provisions or as a result of company behaviour? Please describe in detail.*

- ELENGY doesn't see any critical regulatory barriers by Member States to the optimal use of LNG, nor any critical problem in accessing EU's existing LNG terminals.
- However, ELENGY would like to mention the following points:
 - The way regulated and exempted terminals can coexist on a same region would deserve to be examined carefully, as this will be soon the case in France.
 - Some entities may refuse gas, arguing that there is a problem linked with odorization. This is not linked to LNG terminals as such, and could appear as a kind of protectionist measure.

⁷ 1 m³ LNG ≈ 600 m³ gas

- The optimal use of LNG terminals could be made easier thanks to regulatory frameworks that would take them in account as flexibility resources to achieve SoS obligations.
- The LNG world is changing rapidly and so the market needs. In order to keep their LNG terminals as attractive as possible, optimise their utilisation and foster investments in LNG infrastructure, LSOs should be able to quickly develop commercial services in line with LNG market needs.

Question 7: *What do you think are the most critical commercial, including territorial restrictions and financial barriers at national and regional level to the optimal use and access to LNG?*

- ELENGY doesn't see any critical commercial barrier, including territorial restrictions.
- The remaining barriers related to the optimal use and access to LNG, as supply source for Europe, are to be found at the entry into the gas markets downstream of the LNG terminals :
 - TSO entry costs have to be added to the terminal costs for any shipper, increasing its entry costs to the market –thus lowering the competitiveness of the LNG supply chain – whereas system value of LNG terminals can avoid huge equivalent transmission pipeline investments (as with underground gas storages). In this concern, networks tariffs at the exit of LNG terminals could be lowered, with TSOs to be compensated of the induced under-revenues by end-users through exit transport capacity tariffs.
 - As regards gas quality, the present efforts on harmonization of gas quality standards should be continued. In principle, gas quality parameters should have a range as broad as safely and technically possible in order to keep Europe's competitiveness in the global LNG market and to minimise additional costs in the LNG/ gas supply chain. This applies in particular also to the Wobbe Index.
- As for financial barriers, the tax on fuels is an important parameter for the economic viability of the use of LNG in transport. The tax framework for fuels should be stable, predictable and better coordinated within the EU.
- Market based investments should keep a large role in developing LNG import infrastructures, as well as in developing pipelines aiming at serving as an outlet for LNG import infrastructures in excess, at the own risks of the project promoters, and of the shippers whose long term shipping commitments bring the necessary support to the investment. To keep the right investment climate, one should avoid any market distortion or any cross subsidy potentially in prejudice of the long term shipping commitments.

Question 8: *More specifically, do you consider that ongoing EU policy initiatives and/or existing legislation can adequately tackle the outstanding issues, or there is more the EU should do?*

- ELENGY considers that EU should ensure the implementation of the existing legislation. ELENGY doesn't see any need for additional EU policy initiatives regarding access to LNG terminals.
- Moreover, from a general perspective, ELENGY considers paramount that the EU institutions develop a strategy for gas which ensures an important role of gas in the future energy mix on the short, medium and long term and to give the right signals for the gas industry in general. Given that gas infrastructure (including LNG infrastructure) is a long term capital intensive business (2050 and beyond), a sound long term business climate is required. Clear, consistent and enduring policies are required from EU policy makers that natural gas has a key role in the future of the EU energy mix.

International LNG markets

Question 9: *How do you see worldwide LNG markets evolving over the next decade and what effects do you expect this to have on EU gas markets? Do you expect a shift away from oil-indexed LNG contracts, and if so under what conditions?*

- Data from IHS⁸ show an increase of the global LNG output in the medium to long-term perspective, with the highest quantities reached under the planning scenario (Rivalry). This results from projects to be commissioned in Australia, USA, Russia ... However, disparities between scenarios are important; with a gap of 130 Mt between extreme scenarios in 2035 (cf. fig 4). In addition, one may also expect the LNG spot market to continue to grow in importance.

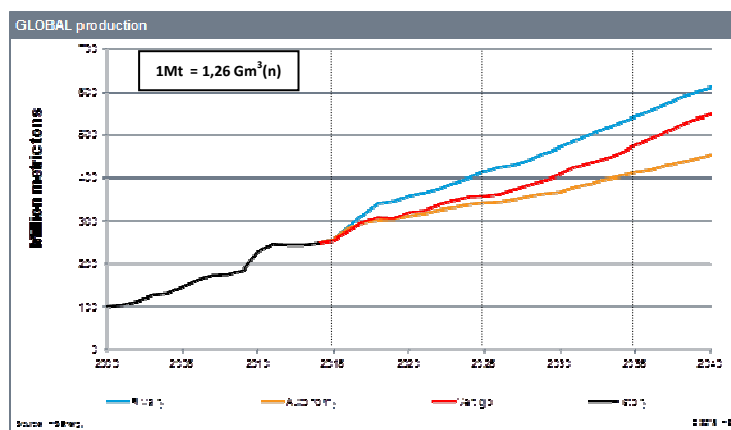


Fig 4

- ELENGY notes that forecasts are envisaging a return of LNG to Europe. European LNG imports should recover their historical peak (2011) around 2018. Under the most optimistic scenario for LNG (Vertigo), imports reach 76 Mt in 2025 and 124 Mt in 2035. Disparities between scenarios are here also important; with a gap of 45 Mt between extreme scenarios in 2035 (cf. fig 5).

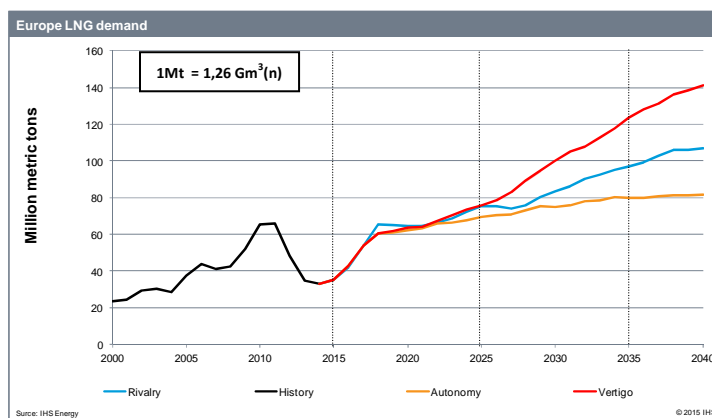


Fig 5

- These IHS forecasts are consistent with the ones of other renowned energy consulting company (eg. Wood Mackenzie) and seem much more realistic than the “Maximum LNG scenario” of ENTSG which foresees the saturation of all LNG terminals in Europe, except in Iberian Peninsula!

Question 10: *What problems if any do you see with the functioning of the international LNG market, particularly at times of stress? Are there specific actions the EU should take, in dialogue with our*

⁸ Long-Term LNG Market Outlook - July 2015

international partners, including in trade negotiations, to improve its functioning and/or to make the EU market more attractive as a destination for LNG? Could voluntary demand aggregation be helpful in some way?

- ELENKY doesn't see any significant problem with the functioning of the international LNG market. It works properly, even at times of stress as evidenced by the Fukushima accident: gas flows where it is the most valued, as it should in a well-functioning liberalized market.

LNG technology issues including LNG use in transport

Question 11: *What technological developments do you anticipate over the medium term in the field of LNG and how do you see the market for LNG in transport developing? Is there a need for additional EU action in this area to reduce barriers to uptake, for example on technology or standards, including for quality and safety?*

- An important technological development in the field of LNG relates to the use of LNG as a fuel. LNG is a technology allowing heavy-duty vehicles to meet the stringent pollutant emission limits of Euro VI standards. LNG is also an attractive alternative fuel for ships to meet the requirements for decreasing the sulphur content in marine fuels or to allow large-scale carriage on inland waterways.

In order to contribute to the development of LNG as an alternative fuel for ships and trucks and thus to contribute to a clean maritime and road transport, ELENKY think that break bulk infrastructure and services are essential for developing the business.

ELENKY support the timely implementation of the existing legislation (e.g. Directive on the deployment of alternative fuels infrastructure, TEN-T program, etc.).

- Floating Storage and Regasification Units (FSRUs) appeared a few years ago and there are presently 21 FSRUs active worldwide and 7 are ordered. According to the experts, FSRUs should continue to develop as they allow to react and adapt quite quickly according to the needs.

In particular, FSRUs need less time than onshore LNG terminals to be installed and above all, vessels originally commissioned as FSRUs are able to function as both a floating terminal or as a conventional LNG carrier. Thus, when a FSRU is not used as floating terminal, it may be disconnected and moved to another location or "simply" used for LNG trading.

LNG sustainability issues

Question 12: *Do you think there are any sustainability issues specific to LNG that should be explored as part of this strategy? What would be the environmental costs and benefits of alternative solutions to LNG? Please provide evidence in support your views.*

- ELENKY would like to underline that any future initiative aimed at making full use of LNG in the EU should duly consider sustainability benefits offered by LNG/natural gas infrastructure. Firstly, by substituting more polluting sources of energy like coal and oil with natural gas and LNG, a quick reduction of greenhouse gas emissions can be achieved against low capital expenditure. This is for instance the case of LNG that may replace oil and coal in remote areas not connected to gas infrastructure. Additionally, LNG contributes to promoting sustainability, given the high level of flexibility of its supplies that make LNG the ideal partner for the development and integration of intermittent renewable energy such as solar and wind.
- LNG as a fuel in the maritime and road transport sector (e.g. trucks) can substantially contribute to the EU's energy and climate goals. Indeed, switching to LNG will deliver not just CO2 emissions

reductions but also significant air quality benefits for citizens, with lower NOx emissions, lower SOx and few particulates.

LNG as alternative solution should be even more developed. For example, the EU should support the extension of Retail LNG : network of refueling stations, train connections...

Storage : Internal market constraints and challenges for storage

Question 13: *What opportunities or challenges do the supply projections for different sources, in particular LNG and pipeline gas and low carbon indigenous sources, present for the use of gas storage / for gas storage operators?*

Question 14: *Are, in your view, current market and regulatory conditions adequate to ensure that storages can fully play their role in addressing supply disruptions or other unforeseen events (e.g. extreme cold spells)?*

Question 15: *As an alternative to mandatory reserves, how could market based instruments ensure adequate minimum reserves?*

Storage : Infrastructure

Question 16: *Do you have any analysis or view on what an optimal level/share of storage in a Member State or region would be? What kind of initiatives, if any, do you consider necessary in terms of infrastructure development in relation to storage?*

Question 17: *Do you think, in addition to the existing TEN-E Regulation, any further EU action is needed in this regard?*

Question 18: *Given uncertainties over future gas demand, how would you assess the risk of stranded assets (and hence unnecessary costs), lock-in effects, the risk of diverting investments from low carbon technologies such as renewables, delaying a transition in energy systems and how would you and weigh those against risks to gas security and resilience? What options exist in your view to reduce the risk of stranded assets?*

Storage : Regulatory framework and potential barriers for storage

Question 19: *What do you think are the most critical regulatory barriers to the optimal use of storage in a regional setting?*

Question 20: *Do you think ongoing initiatives and existing legislation can tackle the remaining outstanding issues or is there more the EU could do? Do initiatives need to include additional issues further to the ones described here?*

Question 21: *Do you consider EU-level rules necessary to define specific tariff regimes for storage only or should such assessment be made rather on a national level in view of available measures able to meet the objective of secure gas supply?*

Question 22: *Have you ever encountered, or are you aware of, difficulties in accessing storage facilities? Has this concerned off-site or on-site storage facilities? Please describe the nature of the difficulties in detail.*

Question 23: *Have you ever encountered, or are you aware of, difficulties related to feeding LNG gas from the storage site back into the gas network? If so please describe the nature of these difficulties (regulatory provisions, company behaviour, technical problems) in detail.*