



EC Consultation paper on an EU strategy for liquefied natural gas and gas storage

Enagás comments

30 September 2015



Main comments

Enagás welcomes the European Commission's initiative to work on an EU Strategy for LNG and Storage. The right strategy could tap large amount of synergies and bring enormous benefits for the EU internal energy market.

Although more detailed views are provided when answering the consultation questions, Enagás' main comments on a future EU LNG & storage strategy are the following ones:

- **All Member States should have access to LNG either directly or indirectly** through other LNG terminals located in other Member States, not necessarily the adjacent ones.
- The **challenge for the EU** does not consist in building new capacity/facilities, but in **allowing a more efficient use of the existing infrastructure by better interconnecting Member States**, including the development of reverse flows.
- LNG and storage only deliver their maximum benefit in a single integrated EU energy market. Gas pipeline interconnections do not only contribute to a more efficient use of the existing infrastructure, but lead to increased security of supply, market integration, price convergence and competitiveness of the whole EU gas market.
- In the case of very remote areas not being able to connect to the main gas transmission grid, LNG supply routes can be a solution. However, for other cases, the **"LNG virtual pipelines" (understood as the potential LNG traffic between two European import terminals) cannot be considered as an option to effectively integrate markets and achieve price convergence** among them. Gas pipelines interconnections are indeed the only way able to effectively integrate gas markets.
- **Any future LNG and storage strategy should facilitate and orientate towards the integration of the Iberian Peninsula with the rest of Europe.** The Iberian Peninsula account for 38% of the regas capacity in the EU and 44% of the LNG storage capacity in LNG terminals. Only a minor fraction of the spare capacity in the Iberian Peninsula could be used by other European countries with the interconnection capacity that will be reached by December 2015.
- New LNG and storage projects should be backed by a positive cost-benefit analysis (CBA) that properly assesses whether using existing LNG infrastructure (through enhanced interconnections) can be a better alternative option than building a new infrastructure. In particular, the negative effect that new LNG capacity might have on the effective usage of existing LNG capacity or on the

construction of interconnections required to complete the internal market must be taken into account.

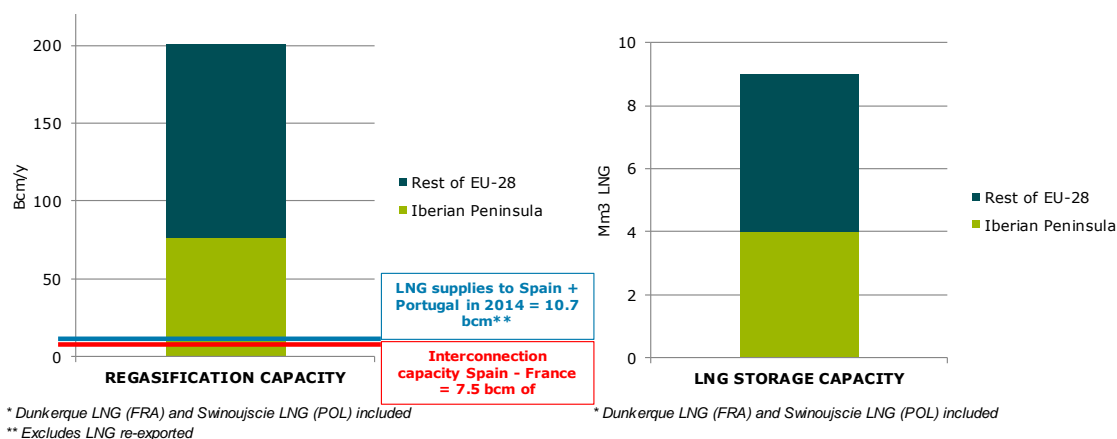
- When deciding on **Cross Border Cost Allocation (CBCA)** of new projects, then the **"No loser, no compensation" principle should continue to be applied**. It streamlines decision process avoiding delays.
- Moreover, the **situation in terms of investments aimed at interconnecting Member states already done in each country must be acknowledged in the CBCA** analysis. It might be the case that a country has already prepared its network for an interconnection, requiring few additional investments to complete it.
- In the context of rapid changes in the global LNG market, the EU should ensure that the European market remains attractive by **removing all technical, legal and regulatory barriers to global trade** (i.e. LNG imports and re-exports), and by ensuring that, once LNG arrives into the EU, it is able to flow freely across the borders towards those areas where it is valued the most.
- In order to attract more LNG supplies, it should be **ensured that regulations are flexible enough** to allow LNG terminals to offer in due time more innovative/flexible capacity products and services which meet market needs. This is particularly relevant for creating a **level-playing field for regulated LNG terminals vs. exempted terminals**.
- **Market-based prevention measures might not suffice to ensure security of supply in some Member States**; in that case, non-market based measures would be justified. These measures need to be well designed to minimize its impact in the market and it must be proven that they are cost-effective.
- Finally, LNG offers great advantages in terms of emission reductions, in particular in the transport sector (mainly heavy duty vehicles and maritime transport), and as enabler for renewables integration. The **EU should design an EU Energy and Climate Policy which ensures a key role of gas in the future EU energy mix** by promoting the development of new gas uses and the replacement of oil and coal by gas.

Consultation Questions

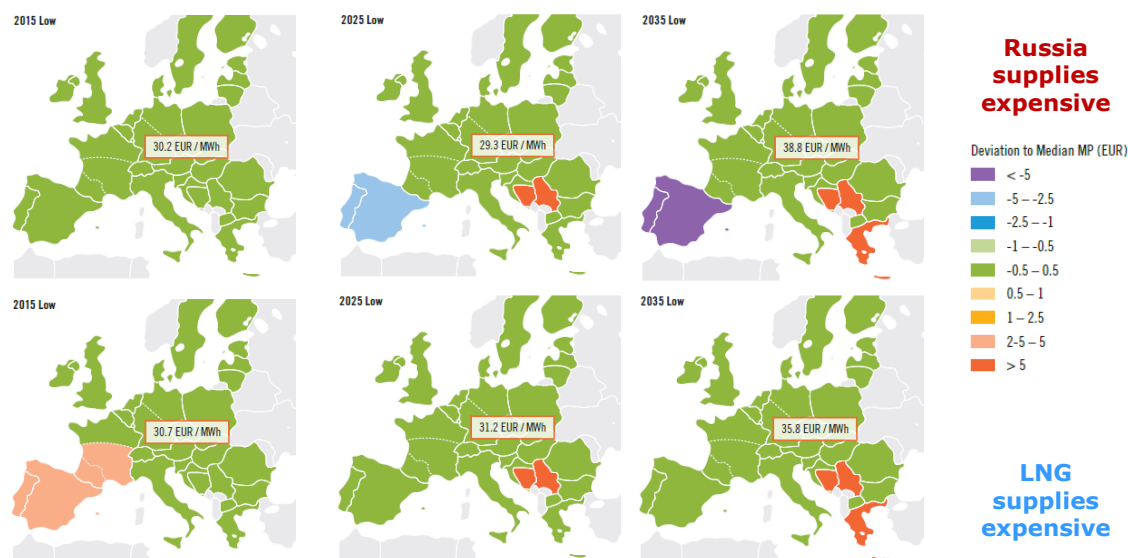
Question 1.1: Do you agree with the assessment for the above regions in terms of infrastructure development challenges and needs to allow potential access for all Member States, in particular the most vulnerable ones, to LNG supplies either directly or through neighbouring countries?

1. First prerequisite before discussing an EU LNG strategy is to remember the foundations of the Energy Policy, and the targets of the EU Energy Union. As a premise for further discussions, the European Union wants to achieve a single integrated, competitive and secure gas market, where energy can flow freely across the borders, and where all the consumers can equally benefit from a single market by ensuring a common level playing field.
2. To achieve this target, all Member States need to look beyond their national interests and think on a European way. While it is true that the achievement of a single gas market might require investments in one Member State which might not be totally needed by the concerned Member State, those investments are needed from an European Point of view in order to integrate markets, increase security of supply or other externalities.
3. Each Member State should be able to have access to LNG either directly or indirectly through other Member States, not limiting the scope to adjacent Member States only. In Europe, we can see today how LNG terminals are regasifying gas which is aimed to other countries, not necessarily the neighbouring ones. Thus it is up to the market players to decide towards which destinations the LNG is flowing.
4. LNG is an important provider of supply diversification and security of supply. In 2014, the EU imported LNG from more than 12 different origins. EU LNG terminals are the entrance door for LNG volumes which can enter the EU single market and compete with and/or complement traditional pipeline gas supplies (e.g. Russia).
5. LNG also contributes to increase gas supply competition by opening the door to new gas supplies which have different prices than the pipeline gas.
6. LNG has already demonstrated it is an effective tool in addressing emergencies and mitigating supply shortfall / demand spikes. For instance, following the Fukushima tragedy, by accepting higher LNG prices, Japan was able to attract additional LNG supplies and increased its LNG consumption for power generation from 50 bcm/y to >70 bcm/y. Other examples where LNG was a key to mitigate supply emergencies are: Chile post curtailment of imports from Argentina (mid 2007), Brazil droughts impacting hydro-based power production (2014), Israel & Jordan post curtailment of imports from Egypt (2012), etc.
7. Regarding the regional analysis presented by the Commission in the consultation document, Enagás strongly agrees with the Commission in the existence of a **bottleneck between France and Spain**, as well as within France.

8. In the South → North direction, the level of interconnection capacity between France and the Iberia Peninsula is not high enough to allow the Iberia Peninsula to make full use of its entry capacity (LNG terminals + import pipelines). More interconnection capacity is needed so that the Iberian Peninsula can better contribute to the European gas market in terms of security and diversification of supply.
9. In 2014, the Iberian Peninsula imported 10.7 bcm of LNG for self consumption, while LNG terminals regasification capacity was higher than 75 bcm (more than a third of the EU in terms of regasification, and 44% in terms of LNG storage). Although more than 5 additional bcm of LNG were re-exported (i.e. not regasified) the spare capacity that could be used by the rest of the EU in case of low LNG prices or SoS purposes is enormous. However, interconnection capacity between Spain and France is limited to 7.5 bcm/y (including the foreseen increase by December 2015).



10. This analysis is supported by ENTSOG's TYNDP 2015 simulations, which shows that in the low infrastructure scenario (only FID projects are built) the Iberian Peninsula would enjoy lower prices in 2025, and much lower prices in 2035, than the rest of Europe if Russia supplies were more expensive than the rest of supplies.



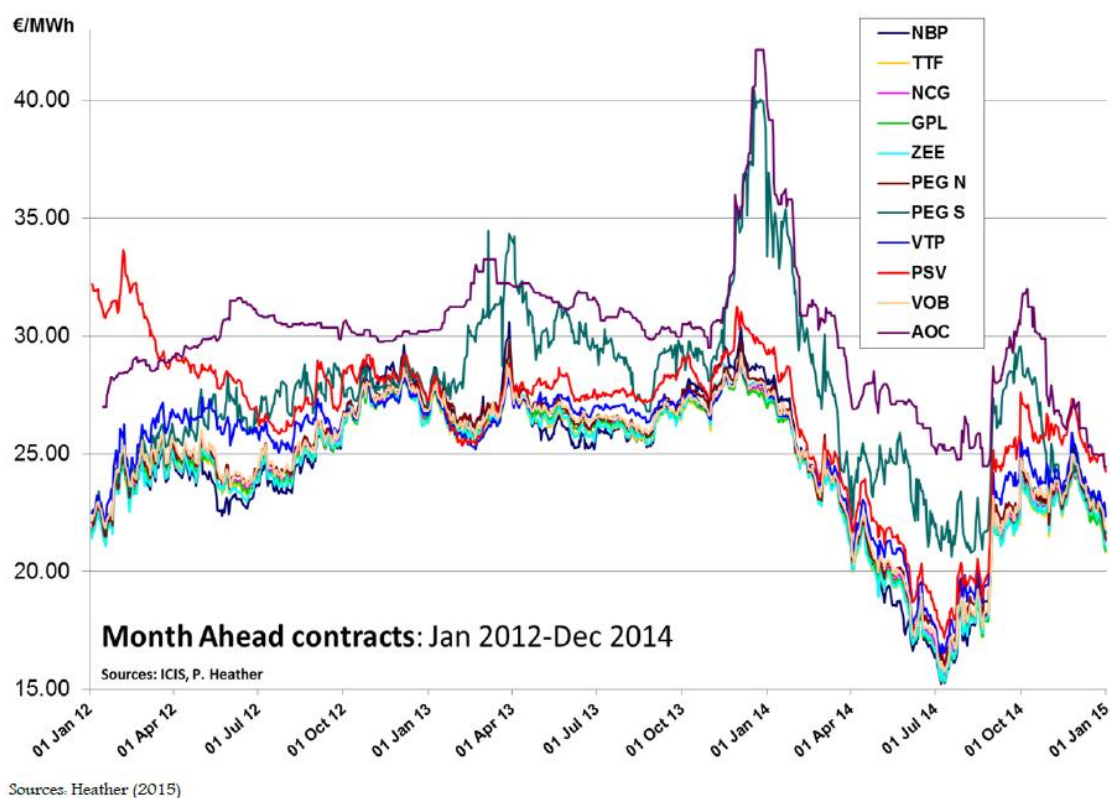
Source: TYNDP 2015

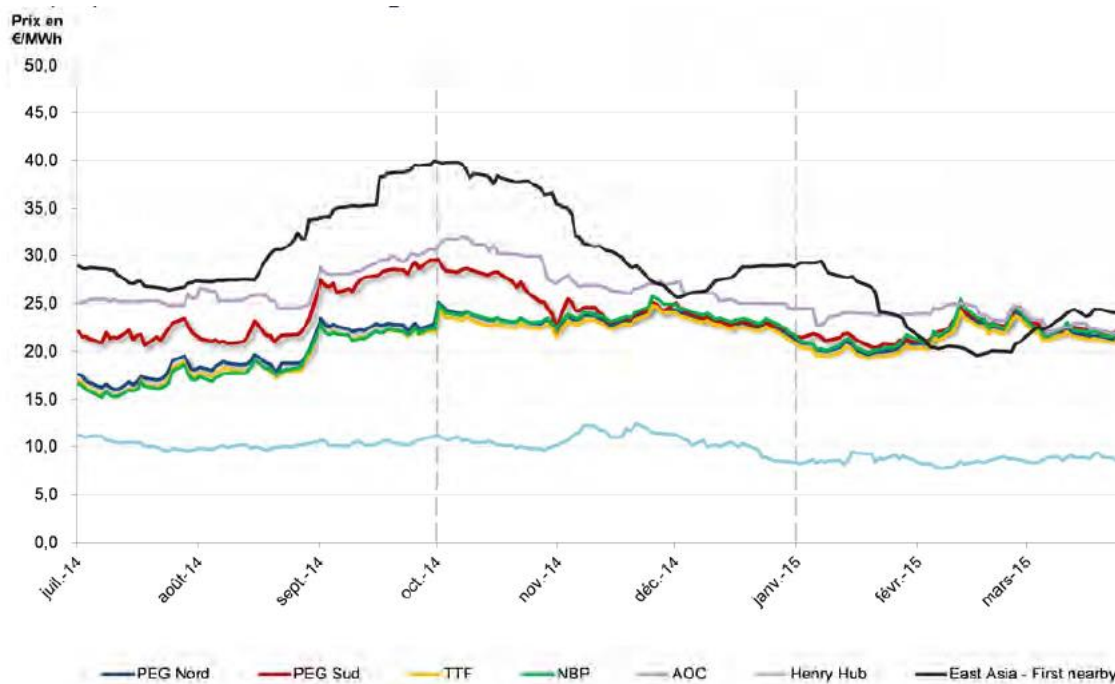
11. In the North → South direction, the existence of bottlenecks has also lead to sustained price differentials between regions. The graphs below, provided by an OIES study and by the CRE, show the evolution of prices in different EU markets from Jan 2012 to Jan 2015. During that period, when substantial amount of LNG were being diverted to other parts of the world, the Iberian Peninsula was relying more on pipeline gas. In that graph, it can be seen that while markets in North Europe, which enjoy sufficient interconnection capacity (around 100% interconnection levels), show a price convergence with similar (no equal) prices, this was not the case for Spain.
12. Consistently, ENTSG's TYNDP 2015 theoretical analyses shows that when LNG prices are more expensive (as has been the case from 2012 to end-2014) in the low infrastructure scenario, prices are higher in the Iberian Peninsula and Southern France.
13. The AOC (former name for the balancing point in Spain, *Almacenamiento Operativo Comercial*) in that graph reflects the gas import prices at the Spanish market. It can be seen that AOC has had the highest prices during the covered period, with peak differentials higher than 10 €/MWh. This clearly indicates that the existing infrastructure has not been able to provide a higher price convergence between the rest of Europe and Spain, and that the Iberian Peninsula and the rest of Europe are not integrated.
14. Within France, the price differentials of PEG South compared to PEG North have also indicated internal bottlenecks within the French gas market.
15. This comes to confirm the analysis made by the European Commission. Removal of bottlenecks and proper interconnections should be a key element

of the EU LNG and Storage strategy. These are needed to integrate market (achieving a single EU gas market), increase security and diversification of supply, solidarity integrate renewables, etc.

16. It is important to highlight that the cost of “no-market integration” paid by the Iberian consumers during that (3 year) period is estimated to be in the range of several hundred million euros per year. This amount would be enough to cover the whole investment cost of new interconnectors needed to integrate both markets. However, due to different reasons, the market is not delivering this cross-border investment, which indicates that EU action is needed.

Figure 14. NWE/CEE/SE hubs price correlation, Month Ahead contracts. 2012-2014





Source: Pownext, Heren in CRE, "Observatoire des marchés de l'électricité, du gaz et du CO2 1er trimestre 2015"

17. A recent analysis by Wood Mackenzie also shows that by 2020 & 2023 the Iberian Peninsula will not be able to make use of its full regasification capacity due to bottlenecks between Spain and France, and within France, if further interconnection capacity is not built. At the same time, the analysis shows that a number of pre-FID projects (new terminals and expansions) are still active in NW Europe.

Pipeline bottlenecks and regas capacity ownership will shape price differentials across Europe

NBP likely at discount to NW Europe unless new regas is built

MAP: Regas capacity in Europe by region



Source: Wood Mackenzie

Regas capacity by region and by status



Wood Mackenzie
A Verisk Analytics Business

5 Trusted commercial intelligence
www.woodmac.com

Source: "European gas price dynamics", presentation by Massimo Di-Odoardo at Wood Mackenzie Gas & Power Forum, London 23 Sep 2015.

Note that approval from Wood Mackenzie is required to make use of this slide for purposes other than the LNG & Storage strategy report.

18. In Enagás opinion, going ahead with most of other projects instead of investing in interconnection capacity would be detrimental for the completion of the internal market.

Question 1.2.: 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

19. There is no an optimal level/share per region or Member State, because LNG plays different roles in different countries. Enagás would like to see the capacity of their terminals booked as much as possible, but it is up to the terminal users to decide what the "optimal use" of LNG infrastructures should be.
20. Each region or Member State should aim to ensure the right level of diversification. It can take the form of (i) a residual supply index (percentage) higher than 110% as set in the Gas Target Model to be reach, and/or (ii) a minimum threshold of three different sources of gas per region.

21. If a given region or Member State is supplied with LNG, the LNG import capacity (directly or indirectly through other Member State) should be big enough to help to compensate a disruption of the biggest source of gas to that region, according to certain levels of security of supply coverage previously agreed.

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?

22. When considering whether to build a new infrastructure or not, then optimisation and better use of existing infrastructures should be the first option to be taken into account. The current storage and regasification capacities in Europe are enough to cover market demand. The challenge for the EU therefore does not consist in building new capacity/facilities, but in better using the existing ones by interconnecting Member States, including the development of reverse flows, to allow for an efficient use of existing capacities.
23. New LNG and storage projects should be backed by a cost-benefit analysis (CBA) that properly assesses whether using existing LNG infrastructure (through enhanced interconnections) can be a better alternative option than building a new infrastructure. In particular, if the CBA took into account the negative effect (opportunity cost) that a new LNG terminal could have on the development of an interconnection in the Western Europe area, when the latter allows for price convergence, few LNG terminals would pass the test of a positive CBA.
24. If building/extending an interconnection means better utilisation of existing LNG terminals, then optimisation of existing LNG terminals is preferable to build an additional LNG terminal capacity. This would avoid, for instance, ending up with two LNG terminals (the existing one and the old one) with non-booked capacities.
25. Interconnections not only allow the better use/optimisation of existing infrastructure, but they also provide additional benefits such as enhanced security and diversification of supply (access to all gas sources from neighboring country), market integration, price convergence, achievement of a truly single market, etc. This means that with the same investment multiple targets would be achieved simultaneously.

26. It is very important to understand that LNG virtual pipelines cannot be considered as an alternative to gas pipelines when aiming to interconnect and integrate markets. LNG virtual pipelines do not work like gas interconnection pipelines. Gas pipelines offer within day arbitration opportunities that LNG virtual pipelines are not able to provide. LNG virtual pipelines operate according to the physics imposed by the loading-transportation-unloading operations of LNG, which require specific periods of times (in the range of several days in total). LNG virtual pipelines are also conditioned to the existence of LNG in the origin LNG terminal, which is not always the case, and the operational costs (including gas losses) are much higher than for gas pipelines. It is for this last reason why, in case of sustained low price differential between markets, like those happening often between France and Spain (i.e. 1-2 €/MWh), the LNG virtual pipelines would not be enough to achieve market integration and price convergence among them, while gas pipelines would effectively do it. Finally, it is important to remember that LNG is a global market, and that an LNG cargo moving along an LNG virtual pipeline can be easily diverted to Asia or South America if the prices in those regions are higher enough. In this case, the sought connection between markets connected by LNG virtual pipelines would be lost.
27. LNG terminals and gas pipelines cannot be assessed in isolation. Small Scale LNG services, UGS and distribution networks, are elements which might generate synergies, and which we have to take into account.
28. There is need to ensure that PCIs (especially interconnectors which will help to optimise the existing infrastructures), especially those with a positive CBA and high social-welfare benefits are built as soon as possible. The construction of PCI projects is equally important. The optimisation of existing gas infrastructure should be criteria to be taken into account when selecting PCI projects.
29. Investments should be mainly market driven, and always under a positive CBA. When due to different reasons that market is not delivering the required investments and it is not possible to build a single, secure and integrated market, then the EU has to step in. EU funds can then be mobilised to cover the part of the investment which is not covered by the market. The EU is the main agent interested in building a single European market, and the EU is the one who should make possible that investments are taking place to achieve this target.
30. When deciding on Cross Border Cost Allocation of new projects, then "No loser, no compensation" principle should continue to be applied. It streamlines decision process avoiding delays.

31. Moreover, the previous infrastructure situation in terms of investments already done must be acknowledged in the CBCA analysis. It might be the case that a country has already prepared its network for an interconnection, requiring few additional investments to complete it.

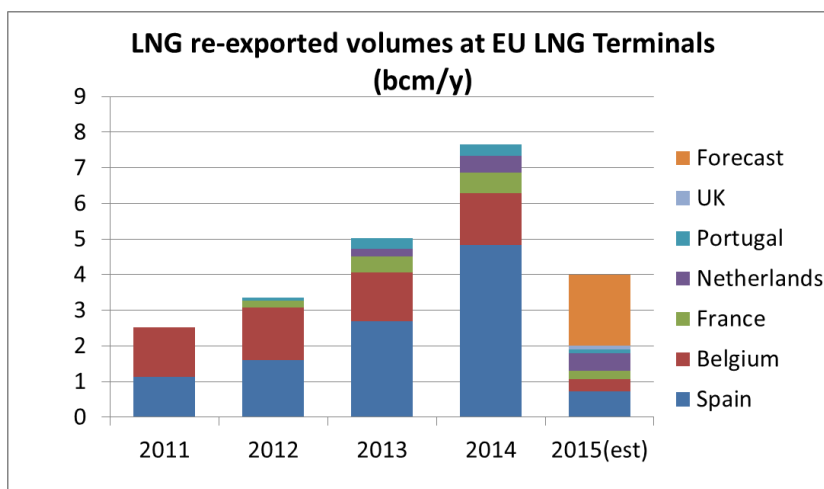
Question 3: Do you think, in addition to the already existing TEN-E Regulation, any further EU action is needed in this regard? Do you think the use of LNG gas and existing LNG infrastructure could be improved e.g. by better storage possibilities, better network cooperation of TSOs or other measures?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

32. Before adding any new EU further action, it is important to ensure the timely implementation of the existing EU legislation. Timely implementation of the TEN-E regulation will contribute towards streamlining administrative and regulatory procedures and incentivising gas infrastructure projects. Implementation of other EU legislation is also crucial. Implementation of network codes for instance will further contribute towards operation of the EU gas network in an efficient and harmonised manner.
33. Important to remember the advantages of independent combined operators (TSO + LSO). Advantages of having one-stop-shop operator for LNG and transmission services. Moreover, it is always good to promote cooperation between TSOs and LSOs as a way to enhance LNG terminal optimisation.
34. From the overall perspective, utilisation of LNG import terminals depends mainly on LNG pricing on markets in different parts of the world. It is worth noting that with new trends emerging on the global LNG market (e.g. increasing LNG volumes on the supply side, decreasing EU domestic production, etc.) there is a potential for LNG cargoes to arrive more often in Europe in the upcoming years.

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?

35. LNG is increasingly becoming 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.
36. 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, but re-exports also provided an additional source of income for LNG terminals operators. The low utilisation from last years indicates that LNG market works properly and LNG moves towards areas of high LNG prices.



Source: GIIGNL – LNG Industry Reports 2011-2014, GLE internal assessment

37. Even if with the decreasing of price differentials between Europe and Asia, the number of reloading operations in Europe has decreased, these operations constitute an important part of the current global LNG market, and they should not be forbidden or disincentivised by EU/national legislation.
38. Simultaneously to the decrease in reloading operations, the EU average regasification utilisation factor is expected to increase (as it is indeed happening during the first 8 months in 2015, compared to same period in 2014).
39. The LNG market is constantly changing 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 if an appropriate EU Energy Policy makes possible the the right price signals are in place.
40. Stranded assets are those assets which are not mainly underpinned by commitments (either from the market and/or regulators), and fail to deliver a sound business case. Thus, stranded assets are not those which experience a low regasification utilisation factor, but those which are not viable from an economic point of view (i.e. adequate rate of return). Therefore, in this sense, as long as the new LNG projects, offering a positive Cost-Benefit Analysis (CBA), are mainly supported by (long-term) commitments either from the market and/or regulators, the risk of stranded asset is expected to be low.

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)?

41. LNG is not only aiming to provide gas for heating. LNG provides Security of Supply, Diversification of Supply, competition, flexibility and integration of renewables.
42. LNG for maritime use and Heavy Duty Vehicles bring enormous benefits in environmental and competitive terms.
43. 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.
44. Natural gas / LNG is an excellent flexible balancing tool which is acknowledged to be the strongest enabler for 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)¹ 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%².
45. Moreover, LNG has specific advantages in relation to its physical characteristics³. Different to UGS, LNG terminals are able to provide the highest output over the whole stored LNG 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.

¹ <http://www.gasnaturally.eu/uploads/Modules/Publications/air-qualityfinal.pdf>, 2013

² i.e. 810 million metric tonnes (<http://www.gasnaturally.eu/uploads/Modules/.../eu-policy-july-2011.pdf>, July 2011)

³ 1m³ LNG ≈ 600 m³ gas

46. Storage facilities are also providing flexibility and security of supply, and they are able to be closer to the consumption areas (especially in those countries landlocked). Gas storages have also the advantage of having the gas already there, and immediately available.
47. So as conclusion, LNG terminals and storages are not competing with RES. They are complementary. LNG terminals and storages are excellent candidates to enable the development of the EU Energy System transformation, playing a key role in a low-carbon economy.

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.

48. As regards Gas quality, special consideration should be given on the harmonisation of the gas quality standards. As regards Wobbe Index, this parameter 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.
49. Avoid any restriction on re-exports from European terminals, as this will decrease the attractiveness of the EU for LNG in the mid- and long-term.

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?

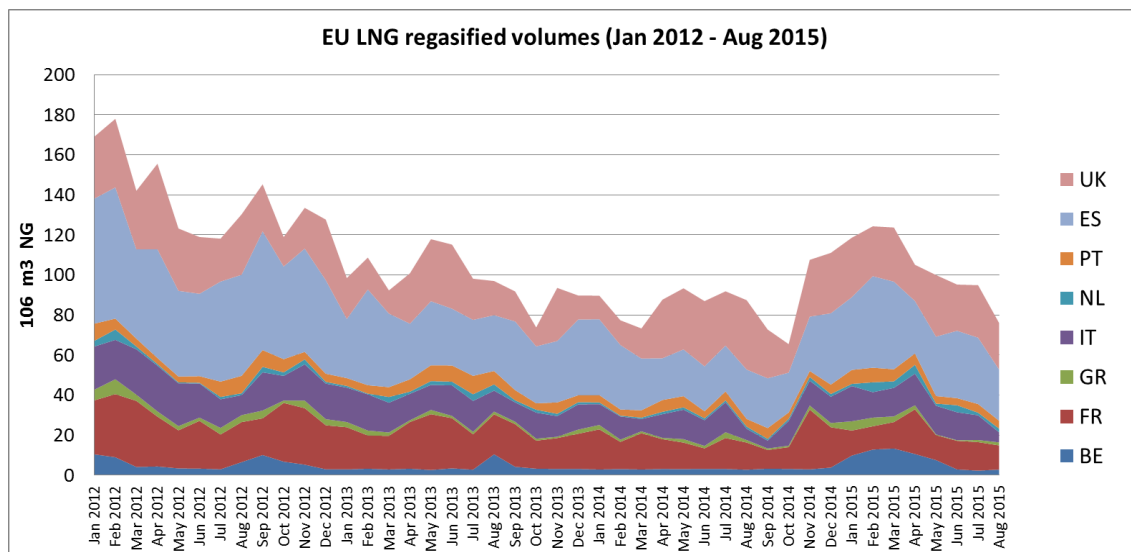
50. Not aware of any critical commercial barrier to access the LNG terminals. Nevertheless, Enagás is open to discuss how to improve its terminal services according to the market needs. For this purpose, and in order to attract more LNG supplies, it should be ensured that regulations are flexible enough to allow LNG terminals to offer in due time more innovative/flexible capacity products and services which meet market needs.
51. As regards transparency, different transparency initiatives are in place not only by Enagás, but also by GIE/GLE. (see GIE website for more info)
52. In a single market, LNG terminals compete one with each other. Hence, there is need to establish a common level playing field for LNG terminals in Europe, always under the existing Third Package rules (no need to change this Package).

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

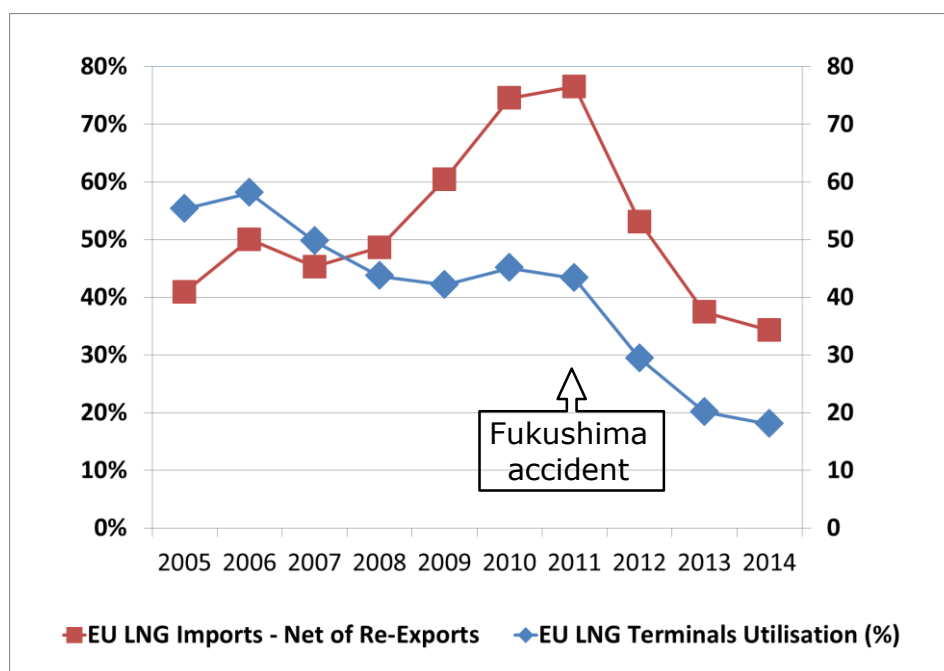
53. EU should ensure the implementation of the existing legislation. We don't see need of any additional EU policy initiatives regarding access to LNG terminals.
54. Moreover, from a general perspective, the EU institutions should take the right options to keep an important role of gas in the future 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.

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?

55. The long-term contracts will remain, but probably will progressively move towards hub indexation (as it is already the case with USA)
56. The LNG market is a global market with dynamics which might change rapidly. The LNG spot market is growing and, in principle, more contracts linked to hub prices (instead of oil prices) are expected.
57. Data from different sources, agree that an increase of global LNG production output in the medium to long-term perspective is expected. This will result from projects to be commissioned in Australia, USA, Russia, Malaysia, etc. In addition, one may also expect the LNG spot market to continue to grow in importance.
58. Forecasts are also envisaging a return of LNG to Europe, with an increase of LNG volumes entering the EU market.
59. In this sense, the analysis of LNG regasified volume in the first 8 month of 2015, as published by LSOs on ALSI platform, shows an already increase of more than 20% compared to the same period in 2014.

Source: ALSI⁴

60. The following graphs, based on data from ALSI and GIIGNL, show the evolution of the EU LNG average utilisation factor from 2008 until 1H2015, as well as the LNG import volume evolution over that period.



Source: GIIGNL Industry Reports 2005 – 2014

⁴ ALSI is a GIE public platform making available operational data regarding the operation of the EU LNG terminals. ALSI includes daily information at country level covering the LNG regasification capacity in operation in the EU. Data is published on the website of GIE under the following link: <http://lngdataplatfom.gie.eu/>

61. LNG terminals are long-term capital intensive investments with asset life of 40 years and more. It is therefore short-sighted to judge the LNG terminal based on the statistics from the last 2-4 years only.

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 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?

62. The EU should contribute to remove all the possible trade barriers, if any, which are located between the LNG producing countries and the EU gas market.
63. Voluntary demand aggregation is already happening in the LNG business in specific cases.

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?

64. 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.
65. 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, LSOs think that break bulk infrastructure and services are essential for developing the business.
- LNG refuelling stations for ships/trucks
 - LNG satellite plants/storages
 - Small scale liquefactions
 - LNG bunkering ships
 - Reloading
 - Loading of bunker ships

- Loading of small ships
- Loading LNG ships
- Truck loading
- Rail loading
- etc.

66. In some countries LSOs already offer the above services. We are of the opinion that these services should be further developed.
67. In case of countries which are looking for security for supply against seldom short-time potential supply disruptions, Floating Storage and Regasification Units (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.

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.

68. 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.
69. Efforts to ensure the wide use of LNG as a fuel in the maritime and road transport sector (e.g. trucks) are welcomed. Such technologies can substantially contribute to the EU's energy and climate goals. When taking decisions about the mobility of the future, it should not be forgotten that gas for transportation offers great opportunities for meeting the environmental targets of the transport sector in the most economical way. Switching to LNG will deliver not just CO₂ emissions reductions but also significant air quality benefits for citizens, with lower NO_x emissions, lower SO_x and few particulates.

70. The EU directive for the deployment of alternative fuel infrastructure paves the way to further increase the penetration of LNG and CNG in the transportation sector (especially maritime and heavy-duty vehicle). The number of vehicles running on natural gas (exceeding already one million in the EU) and the number of current refuelling CNG/LNG stations in place are just a sign that, with the right incentives, this market can develop much more and replace the more polluting and more carbon-intensive oil-based fuels in a cost-efficient way.

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?.

71. According to the IEA, natural gas is the only fossil fuel with a global growing share of the energy mix for the next two decades, with a 21% share in 2012 moving up to 24% in 2040. In Europe however, the share of gas in the energy mix has been diminishing due to the economic downturn, low CO₂/coal prices, energy efficiency improvements and the development of renewable energy sources. The future share of gas remains uncertain and will be mostly impacted by the EU energy policy.
72. Regarding pipeline gas, the fall in domestic production and growth in import dependency through pipelines will get even more pronounced in the coming years. More imports from distant source countries mean more demand for flexibility which can be an important factor leading to more storage being required.
73. Regarding low carbon indigenous sources: their increase in the energy mix also means more demand for flexibility in the power market that can be provided by gas-fired power plants. Underground gas storage has an important role in providing physical gas flexibility to gas-fired power plants.
74. Storages seem to be a competent partner for LNG terminals. There are natural synergies between LNG and storage, where advantages provided by storages can complement the LNG terminals operations. Especially as the transportation of cargos need time or in case of LNG supply disruption, gas storages which have the advantage of having the already delivered volumes with them, can be used to meet (peak) demand.

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)?

75. Regarding market conditions, the summer-winter spreads have always been seen as a fundamental driver of storage value from the shippers' point of

view. Their decline since 2009 has removed price signal for storage: shippers prefer to cover their flexibility needs by sourcing gas on spot markets, or by other flexibility tools, as they might anticipate that the worst situation will never materialize.

76. These unfavourable market conditions might lead to the closure of storage facilities.
77. Regarding regulatory conditions: storage competes on the flexibility market with other flexibility tools which are more economically attractive. The regulatory framework should be adapted to ensure a level playing field between all the flexibility sources and by facilitating commercial innovation. One way forward, while respecting the Third Package rules, would be allow storage operators to develop more quickly new capacity products and services.

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

78. In addition to a level playing field with other flexibility sources, other measures could be taken in order to ensure gas is available in case of unexpected events.
79. One way could be by incentivizing user to maintain gas reserves in the storage, provided that the market functioning is not distorted.
80. However, as individual markets differ greatly (see also answer to question 16), there might be a need for traditional storage-related security of supply measures (e.g. France) and strategic storage (e.g. Italy or Spain) provided that the market functioning is not distorted. For instance, mandatory reserves it is important to ensure that such mandatory reserves are not used for other purposes than an emergency situation to avoid market distortion.
81. Differences in markets require different solutions: no "one size fits all" solution exists. Consequently there is also no a specific level of gas in storage to ensure security of supply.

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?

82. A certain level/share of storage should not be an objective per se. There is no one common "storage prescription" as each country's energy system is unique. What matters is to ensure a targeted level of security of supply and

the market should be primarily incentivised to deliver it. Regarding potential infrastructures development the ENTSG methodology for Cost-Benefit Analysis is able to provide meaningful insights.

83. In general, Enagás is in favour of considering as first option to use the existing infrastructure before taking any decision about new infrastructures. Taking in account the abundant storage capacity currently available in Europe, more pipeline interconnectivity would be a way forward to guarantee that existing storage capacity is optimized and that a single European gas market is achieved (making possible higher market integration, security of supply, higher competitiveness, etc.)

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

84. Implementation of the TEN-E Regulation is essential for the development of the internal energy market and plays a crucial role in ensuring the security and diversification of supply.
85. As mentioned earlier, overall there is enough underground storage capacity at EU level. However, this does mean that all Member States count with enough capacity at national level, due to for example, geological reasons. In this respect, the TEN-E regulation provides a good instrument to ensure that countries become well interconnected, providing the necessary infrastructure for those Member States with little access to underground storage capacity at national level with access to the capacity from other Member States.

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 weigh those against risks to gas security and resilience? What options exist in your view to reduce the risk of stranded assets?

86. Natural gas is an efficient solution to enable RES and allow for their integration into the EU Energy System. Storage facilities and RES are not competing, they are complementary. Storage facilities are excellent candidates to enable the development of the EU Energy System transformation, while ensuring security of supply and playing a key role in a low-carbon economy.
87. A number of key areas of energy policy need to be addressed. Clear, consistent policies are required from EU policy makers so that natural gas has a key role to play in the future of the EU energy mix. The EU ETS needs an overhaul so that cleaner technologies such as natural gas can compete

against less clean technologies such as coal on an equal footing, with external costs being taken into account. Subsidies for mature renewable technologies in the power generation sector should be eliminated as they distort the internal energy market.

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

88. One of the main critical regulatory barriers to the optimal use of storage is not having the ability to offer customized capacity products to meet market needs. It should be ensured that regulations are flexible enough to allow operators to offer in due time more innovative/flexible capacity products and services which meet market needs.

Question 20: Do you think on-going 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?

89. Implementation and compliance with existing legislation is crucial before launching new initiatives.
90. Having said that, we recognize that Regulation 994/2010 on security of supply, needs updating to reflect practical experience gained in the past few years as well as the opinions of various stakeholders voiced in public consultations organized by the Commission.

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?

91. The possibility of having specific transmission tariffs for underground gas storages is part of the tariff network code. The proposed Network Code on Harmonized Transmission Tariff Structures points in a specific way so that NRAs can use the text of the Network Code as a tangible guidance when setting transmission tariffs at storage connection points.

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.

92. When it comes to market players gaining access to storage, few difficulties should be expected. The current transparency and regulatory terms seem to be enough.

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.

93. No comment (please refer to the users' points of view).